THE OIL WEEKLY

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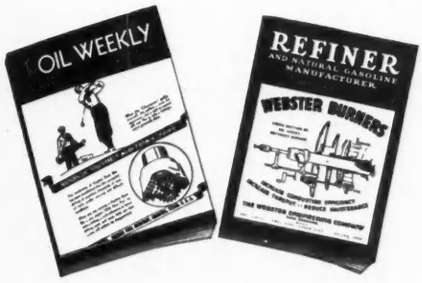

SPECIALIZED OIL JOURNALS
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The Oil Man's Calendar

JAN. 24	Governor Marland's Petroleum Conservation Conference of Oil State Governors, Hot Springs, Ark.
FEB. 14-15	Kansas Oil Men's Association, Annual Convention and Exposition, Hotel Broadview, Wichita.
14-18	American Institute of Mining and Metallurgical Engineers, Annual Meeting, New York.
17-18	Mid-Continent District, A. P. I., Division of Production, Herring Hotel, Amarillo, Texas.
MAR. 16-18	Annual Meeting, American Association of Petroleum Geologists, Roosevelt Hotel, New Orleans, La.
23-25	American Society of Mechanical Engineers, Los Angeles, Calif.
24-25	Southwestern District, A.P.I. Division of Production, Spring Meeting, Blackstone Hotel, Fort Worth, Tex.
APR. 13-15	Petroleum Industry Electrical Association, Rice Hotel, Houston, Tex.
19	A.P.I., Division of Production, Pacific Coast District, Spring Meeting, Biltmore Hotel, Los Angeles, Calif.
28-29	A.P.I., Eastern District, Division of Production, William Penn Hotel, Pittsburgh, Pennsylvania.
MAY 6-12	American Gas Association, Natural Gas Department, New Orleans, La.
11-13	Natural Gasoline Association of America, Hotel Tulsa, Tulsa.
12-14	National Oil Scouts Association of America, Tulsa, Oklahoma.
14-21	International Petroleum Exposition, Tulsa, Oklahoma.
23-25	A.P.I., Wichita, Kansas.

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LOOKING AHEAD

WITH THE EDITOR

Better Efficiency from Pumping Equipment . . .

How to Prevent Emulsions . . .

WHICH is the cheaper,—the cost of preventing emulsions on your lease, or the cost of improving dehydration methods you have been using?

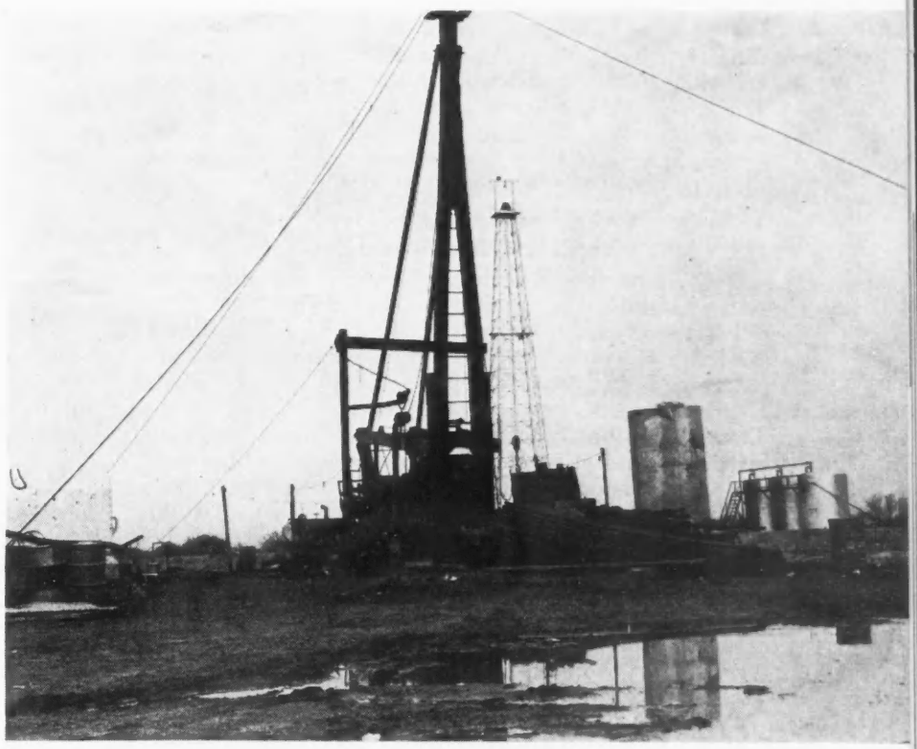
Answering that question without qualifying remarks might put some of us in the same predicament the defendant found himself in when the prosecuting attorney boomed: "Answer me 'yes' or 'no'! Are you still whipping your wife?"

But J. S. Surfluh has some definite opinions on dealing with the emulsion dilemma. You have read in an earlier issue the first part of his paper discussing causes of emulsions, sources and their prevention, turbulence in formation, oil well pumps, tubing turbulence, slippage and gas agitation, flow beans and preventive methods. In a forthcoming issue Surfluh goes into the questions of water traps (squeeze traps), lead line turbulence, gauging methods and transfer pumps. He winds up with specific recommendations for prevention of emulsions.

MANY a man can explain unsatisfactory recovery by blaming a certain method or piece of equipment used. Fewer can tell you just what's wrong with the method or piece of equipment. Still fewer can prescribe a remedy for the trouble. But when you run into one who can, he's worth listening to.

In two previous installments Don E. Schnobrich has discussed corrosion of underground equipment and destructive effects of maladjustment. In an early issue of THE OIL WEEKLY, probably the January 24 issue, he will go into the possibilities of increasing efficiency of pumps and lifting more fluid at less cost by minor adjustments of equipment or changes in the manner of handling equipment.

The changing panorama



The latest oil boom of appreciable size is taking place at the site of an earlier day one —Wichita Falls, Texas. Discovery of deep production at old K-M-A has resulted in one of the largest lease buying sprees since East Texas. Already more than 100 rigs are in operation, 30,000 acres proven for production, an additional 10,000 acres in the drilling play, and 100,000 acres in the lease play. Drilling operations, as shown in the accompanying picture, include cable tool spudding machines and large rotary rigs. A complete story appears on page 28.

THE oil industry currently is encouraged by the mere fact that prices generally in the industry are holding.

For it is comforting to be able to retain any advantages, following three months of unsteady markets and declining gasoline prices. And the absence of any further decline of prices in the past 10 days consequently has been in the nature of an achievement.

Throughout most of the industry, from well to service station, and from coast to coast, the prices have been holding unchanged lately; and there is hope that the established prices can be maintained for some time in the immediate future.

Difficulties Remain

Nevertheless, the industry still is not out of the woods.

The gasoline market, despite any recent further loss of ground, still is in a precarious position.

The unusually heavy inventories of gasoline are particularly disconcerting. The gasoline stock increased another 2,000,000 barrels in the week ended January 8, rising to almost 80,000,000 barrels. They are at the highest level for this time of year in the history of the industry. This present supply is 21.3 percent greater than that on hand at this time last year. This increase in gasoline stocks is not warranted by market conditions.

The demand for gasoline has been running lately about 10 percent above the level of a year ago, and a similar increase is indicated for January this year over January last year.

In view of these unusually heavy stocks of gasoline, it is not possible to generate much enthusiasm over the prospects for the gasoline market.

It appears inevitable that the industry will expand gasoline stocks materially above 90,000,000 barrels before a peak is reached this spring. Obviously, there is serious danger that the gasoline storage may be increased so greatly as to result in unsatisfactory gasoline prices throughout 1938.

Storage Still Increasing

Meanwhile, the trend of gasoline storage continues sharply upward. And it appears likely that further additions to gasoline stocks will be made steadily in the next few months. For a considerable part of the cold season still lies ahead, and much fuel oil will be used for heating homes. But in fulfilling this demand for fuel oil, the industry must turn out large quantities of gasoline, substantial portions of which cannot be absorbed currently by the market. The excess gasoline so made has no outlet except into storage.

Crude Market in Danger

In view of this unsatisfactory gasoline situation, the crude oil market obviously rests upon a foundation that is faulty. And there persist fears that the crude prices now prevailing cannot be maintained.

Information obtained from pipe line companies indicates considerable evidence of weaknes of the crude market.

The crude oil market unquestionably is on the

defensive. And apparently, the most effective thing that can be done to assure maintenance of the prevailing prices is to continue holding down crude production drastically.

For the gasoline situation already has become so serious as to threaten the prevailing crude prices. And in the absence of particularly strict control of crude production, the whole market situation in the industry easily might become demoralized. But, fortunately, the crude control has been unusually strict, and that situation undoubtedly has helped materially in warding off further general market weakness, and possible cutting of crude prices.

Similarly, consistent control of crude production probably will be necessary in the next several months, if present crude oil prices are to be saved.

Important Meetings Loom

Two important meetings, from the standpoint of the oil industry, are scheduled for early dates.

First of these is the scheduled meting of the Texas Railroad Commission at Austin January 18, for considering Texas proration plans for February. There has been some further talk about shutting down Texas fields on Sundays. That proposition came up for consideration when Texas allowables for January were in the making. But the commission at that time decided not to adopt the Sunday shut-down plan, in view of the controversy among operators as to the advisability of such a practice. It is indicated that the plan again will run into serious opposition, if brought up at the forthcoming meeting.

The other important meeting is that scheduled at Hot Springs, Arkansas, for January 24. That meeting was sponsored by Governor E. W. Marland of Oklahoma. Various oil producing states will be represented at the Hot Springs meeting.

The sponsor, in calling the meeting, indicated that the purpose was to promote stability of crude oil prices. Officials of Texas declined to accept the invitation to the meeting on the ground that state officials do not have any authority to get together to fix or influence prices. But officials of some of the other states did not feel so constrained, and accepted the Oklahoma governor's invitation.

It is conceded as possible that some good may result from the Hot Springs meeting. Certainly, the situation which has prompted the meeting, that is, the unsteady crude market, is a situation that warrants some constructive thought. If the meeting can do anything toward strengthening the markets of the oil industry it will have served a good purpose.

Madison Trial Nears End

The trial of oil companies at Madison, Wisconsin, on charges of violating the anti-trust laws, last week was nearing the final stages.

It was indicated that the case might go to the jury at the end of the week. For the defense during the week sent its final witness to the stand. Attorneys for both sides gave the court assurance that all evidence would be completed within a few days.

The trial has been a record-breaking one, having begun October 4, or over three months ago.

Drilling

A ST. PETERS sandstone completion in North Central Tennessee is causing a flurry among Eastern oil men.

A new pool of undetermined value was opened in Wayne County, Illinois, while in Effingham County a wildcat is showing for production.

Bay County, Michigan, came to the fore with a Dundee lime wildcat logging three saturated sands.

A gasser spraying oil from 9015 feet opened up a new field, and the deepest in South Texas, for Hidalgo County. Saxet Heights pool in Nueces County chalked up a new sand at 5100 feet, presaging a twin well campaign in the townsite. Ezzell field in McMullen County was extended 2800 feet southwest. In the Balcones Fault country, Pearsall field of Frio County was extended a mile east by a 3900-foot Navarro sand gas well.

In the Texas Coast, a new field was discovered at Cheek in Jefferson County, and Fairbanks and Palacios fields reported new sands, the former being extended 2½ miles by the find.

South Louisiana contributed a new producing area east of Woodlawn in Jefferson Davis Parish, and a new sand was found on the north flank of Jennings, Acadia Parish.

West Texas operators were surprised when a 3-mile outpost of Mason pool, Loving County, flowed from Delaware formation after missing in the regular pay of the field proper. A well filled with oil in Crane County to assure linking of Waddell field with Jordan and Judkins areas to the northwest.

Market briefs

Outlook—Steadier markets encouraging.

Crude Markets—Prices unchanged.

Refined Oil Markets—Gasoline market remains unstable.

CURRENT OPERATIONS

Week Ended	Daily Crude Production	Daily Crude Runs to Stills
January 8	3,437,100	3,210,000
Previous week	3,436,600	3,320,000
Year ago	3,117,800	3,110,000

CRUDE STOCKS

Date	Crude Oil (Barrels)
December 25	303,294,000
Week before	303,041,000
Year ago	288,517,000

REFINED OIL STOCKS

Date	Gasoline (Barrels)	Gas & Fuel Oil (Barrels)
January 8	79,331,000	119,146,000
Week ago	77,291,000	118,660,000
Year ago	65,402,000	105,971.000

DRILLING

Period	Wells Completed
Past week	470
Previous week	453
Year ago	574
Year Total:	
This year	1361
Last year	1.434

Technology

FEATURED in this issue is the K-M-A field—the latest big boom, and one of the largest producing areas discovered recently. At present 30,000 acres are proven for production, and another 10,000 acres are in the drilling play. Meanwhile the leasing play has spread over 100,000 acres. Additional color is added to this picture by the fact that K-M-A is an old field that has come back through the finding of a deeper pay zone.

The article presents the complete story of K-M-A—its early background, geology, drilling and producing practices, structural features, pipe line facilities, etc. These have been handled in a most interesting and easy to read style—one that is new to oil trade publications.

An abundant use of illustrations adds much to the story. Included among these is a large insert map, to which have been added sufficient elevations and geological markers to make it more than an ownership map.

While the story of K.M.A. features the technical articles, it is not the only one in the issue. In addition the start of a new series on treating emulsions is published. Here is another practical field operating article. The second part of Don Schnobrich's series on methods developed recently which add to pumping efficiencies appears also. Another article is on the economic importance of drilling multiple wells in the Gulf Coast area of Southwest Texas.

Oil in the Courts

Conflicting testimony highlight of important week in trust trial . . . Defense finishes . . . Ickes letter introduced . . . Another defendant released

DEFENSE attorneys in the government's oil conspiracy trial, which has occupied Federal Judge Patrick T. Stone and a jury since October 4, brought their presentation to a close last Thursday and a day later the prosecution had completed its rebuttal testimony, paving the way for a verdict that may be reached before another week passes. Summary arguments by government and defense counsel will be made this week.

James Nagle Released

Judge Stone granted a defense motion for a directed verdict in favor of James Nagle, Tulsa, in charge of wholesale sales for Skelly Oil Company, just before court recessed for the week-end Friday. Similar motions are in preparation for other corporate and individual defendants, to be filed Monday, and will follow the general line of argument previously presented and denied by the court.

What appeared to be one of the sharpest blows yet administered to the defense was delivered during prosecution rebuttal testimony late Thursday, but its value as evidence was shaken severely by flat denial by a succeeding defense witness who collaborated his testimony by record.

Another feature of the past week was the introduction of the now famous "Ickes letter," which the defense has been trying to get before the jury since the earliest days of the trial.

Vaughn Government Witness

B. R. Vaughn, wholesale gasoline dealer of Chicago, was called as a prosecution rebuttal witness to describe a purchase made by Globe Oil & Refining Company in September, 1935. He said that he had 50 cars of gasoline available on the 18th and was approached by Brown Neece, of Globe's Chicago office, who wanted to buy the entire 50 cars. The witness said he was unwilling to sell the entire lot because of demands of his other customers, but agreed to sell 20 to the Globe Company. Neece, he said, called him to his office to complete the deal and while there again made an effort to buy the entire 50 cars. When Vaughn refused, Neece had his secretary put through a 'phone call to someone whom the witness believed was in the St. Louis office of Shell Petroleum Corporation. The party on the other end of the wire urged Neece to make another effort to get the entire lot and during the telephone conversation a statement was made to the effect that "Fanshier would raise the quotations" if gasoline then in the hands of brokers was removed from the market. The witness referred to Keith Fanshier, petroleum editor of The Chicago Journal of Commerce, indicted but not called for trial at this time. The Journal of Commerce was among the corporate defendants dismissed at the conclusion of the government's case.

Vaughn said that between the date of the order and the date first delivery instructions were to take effect, he succeeded in buying another 20 cars of gasoline which he proceeded to use to fill the Globe order. About a week later, when the Globe Company was able to determine that the gasoline was being shipped from a source other than that of the 50 cars Vaughn had available when the order was placed, the remainder of the order was cancelled. The reason given, Vaughn said, was that the gasoline was not being shipped according to instructions that called for two cars a day, but moving from the refinery irregularly. Meanwhile, the Journal of Commerce quotations advanced.

Neece Flatly Denies

Neece, reached in Chicago by defense Counsel Thursday night, flatly denied when called to the stand Friday morning that he knew that Vaughn had 50 cars available, that he attempted to buy more than 20 cars, that Vaughn was in his office in connection with the purchase or that a telephone call was put through to any person in St. Louis. He aso denied that he had ever discussed market quotations with Fanshier or that Fanshier had ever advised him what prices would be carried in the Journal of Commerce the following day.

The Globe official explained that his company was sorely in need of gasoline to fill contract requirements and that he had learned through contacts with Chicago brokers that Vaughn might have some. On stopping at Vaughn's office, located in the same building, he was informed that the broker had had an option on 20 cars that might still be exercised. Later in the day, Neece said, Vaughn advised him that the gasoline was still available, but immediate shipment which was desired could not be made. Shipment at the rate of two cars a day was promised. In the course of the next few days, the Globe Company's traffic department had reason to divert some of the shipments and in attempting to locate the cars which Vaughn had reported shipped according to instructions, found they had not left the refinery. The delay made it necessary for the company to make shipments from the Globe Company's McPherson, Kansas, refinery and resulted in cancellation of part of the order.

Neece produced correspondence showing that the delay caused by failure to ship as instructed placed his company liable for damages suffered by a customer who was out of gasoline and forced to truck it from other sources. The correspondence further showed that the Globe customer did not make another purchase from the company for an appreciable period.

Telephone company records were produced showing that no call was placed to St. Louis, either on September 18 or on days immediately preceding or following, further purchase order showed that the gasoline was to come from Imperial Refining Company, Wickett, Texas, while Vaughn testified that the Globe Company did not know from where the gasoline was coming when the purchase was made.

Vaughn's testimony was given over objection of defense counsel who declared it was not proper in rebuttal and who pointed out that it was available for introduction during presentation of the government's case early in the trial. During cross-examination of the witness, it was revealed that the purchase order carried a clause permitting the Globe Company to cancel when shipments were not made as instructed. The formal cancellation, read to the jury, pointed out that Globe customers were buying elsewhere because shipments were not being made as directed.

Ickes Letter Introduced

After fighting its introduction as evidence since opening of the trial early in October, the now famous "Ickes letter" was read to the jury by the prosecution when Charles E. Arnott, vice president of Socony-Vacuum Oil Company and alleged "master mind" of the price-fixing conspiracy, was called to the witness stand last week for cross-examination. Hammond E. Chaffetz, of the government staff, said the prosecution waived its objection to introduction of the letter, sent by Harold L. Ickes as petroleum code administrator on July 20, 1934, to Arnott, because "there has been so much said and so many questions raised about the letter."

The letter, which authorized Arnott to "take action which we deem necessary to restore markets to their normal condition," did not give authority to influence tank car prices of gasoline but restricted activities to retail price wars, Chaffetz declared.

Defense attorneys consider the letter, along with a memorandum by Louis Titus, chairman of the legal committee of the P and C Committee under the code, which characterized the letter "for all practical purposes a complete protection to you and your committee to engage in all reasonable activities to restore prices to normal levels," a major point in their case. Titus' memorandum continued: "I further conclude that the agent of the President, having solicited the taking of action to stabilize the prices, it is unthinkable that there could ever be any prosecution or criticism by the government for doing the very thing which the President's agent has asked you to do." The court sustained a government objection to introduction of the memorandum in evidence when the prosecution maintained that Arnott could have obtained

[*Continued on page 54*]

Proration Picture

Expect lower Texas allowable in February . . . Wells in Arkansas prorating . . . Hearings before Montana board continue . . . Opposition to Canadian tariff.

INTEREST in proration circles centered largely around speculation as to results of several forthcoming important meetings. Early next week the Texas Railroad Commission holds its annual statewide hearing to gather data for establishing the allowable for February. Immediately following is a meeting of the Interstate Oil Compact Commission at Oklahoma City. The first part of the following week, governors of many of the oil producing states will gather to talk "prices" at Hot Springs.

It is expected, and was indicated by a member of the Texas Railroad Commission, that the Texas allowable for February will be smaller. However, allowances in several fields were increased last week. What to expect from the Interstate Oil Compact Commission and the price conference of governors cannot be predicted.

Apart from the granting of field development regulations, there was little of importance last week. However, Montana continued its hearings, and it developed that a price war between Montana and Canadian fields was a possibility unless proration is continued at Turner Valley. Some are advocating establishing of a Canadian tariff against American products, but opposition is forming as it is thought this might result in high prices to consumers.

Texas expects to reduce allowable in February

Further reductions in the Texas allowable during February and March were predicted last week by Ernest O. Thompson, member of the Texas Railroad Commission. The current business depression and the exceptionally cold weather were given by Thompson as reasons for the decrease in demand.

He explained that gasoline stocks had mounted to 78,000,000 barrels which was the equivalent of 200,000,000 barrels of crude in storage. In addition to this there are 18,000,000 barrels of fuel oil and 303,000,000 barrels of unrefined crude.

From this he estimated that stocks above the ground, including both crude and refined products, are equivalent to about 600,000,000 barrels of crude oil.

"This unusually large accumulation makes it obvious to anyone that a drastic curtailment of production must be had," Thompson said.

He said that only by determining when cold weather would end could anyone determine when the market for crude would increase.

Thompson estimated that the cut might be as much as 100,000 barrels daily, and that it might be effected through the institution of a shut-down program throughout the entire state similar to that which was ordered in East Texas last month.

Federals find Arkansas wells are prorating

F. H. Martin and L. H. Hutchinson, agents of the department of interior, with headquarters at Kilgore, Texas, after a check of proration in the Schuler field, Union County, Arkansas, reported to the state board of conservation that wells in the lower Marine allocated to a top allowable of 400 barrels daily were operating within their allowables. Later the agents went to the Miller County, Arkansas, extension of Rodessa to make a similar check for the Arkansas Board of Conservation.

Only the lower Marine wells at Schuler are subject to proration. It does not affect the Travis Peak producers at the 5559-6000 foot horizon, which produce from five lenses. Nor does it affect the only gas-distillate producer in the Permian (Reynolds) lime at Schuler.

Eighteen wells in the Miller County extension of Rodessa are reported unable to make their allowables under the 10,000 barrel per day allowable for that end of the field.

When the allowable order in Miller County finally went into effect January 1 after being deferred from November 1 practically all lease storage there was full and producers will be given clearance for this oil which the pipe lines are expected to run in addition to the per day allowable. For these reasons a line laid by one operator from this lease to a loading rack on the K.C.S. Railroad apparently will not be needed for the present.

Montana hearing continues

The Montana oil conservation board continued its hearings at Great Falls last week to determine whether production should be curtailed. Proponents of proration, who took a week explaining conditions in the Kevin-Sunburst field early in December, wound up their presentation and left the way open for opponents of the proposal to present their side. At least another week of hearings is expected.

George Hutchins, Annand-Hutchins Cut Bank Syndicate, suggested that small operators may install individual topping plants for manufacture of gasoline if a proration order is not issued to afford them an outlet for their crude. He said that his company had been selling crude to a Canadian pipe line company, but this market was recently cut off when the company stopped buying in Montana. Hutchins estimated that about 80 Cut Bank field wells were shut down because of lack of market, and that about 8000 more barrels a day could be produced if a market was provided. Development of leases will remain at a standstill unless proration opens a market to the small producer, he maintained.

At the conclusion of the proponents' case, the board announced receipt of a telegram from Wilkinson & Potter, of Butte, saying that independent Cut Bank operators had closed a contract with a company constructing a 1500-barrel refinery at Pocatello, Idaho, which would offer material aid to the present situation. Discussion brought out that another 1500-barrel plant under construction at Kalispell, Montana, offers a further market, and proration opponents maintained that within two or three months additional outlets would take all the excess oil now being produced.

Dan M. Drumheller, Cut Bank operator and state senator, declared that proration would nullify efforts to procure additional refinery facilities. He maintained that new markets could be obtained for Montana gasoline if refinery facilities were made available.

Louis P. Donovan, Shelby, an attorney for the opposing group, introduced as exhibits records of the state board of equalization showing that production of crude oil and manufactured gasoline in Montana increased from less than 1½ million barrels in 1921 to approximately 7½ million barrels in 1932. Figures for the first 9 months of 1937 showed in excess of 4 million barrels. About half of the approximately 90 million gallons of gasoline sold in Montana last year was imported, the summary revealed.

Members of the oil conservation board conducting the hearing are L. B. O'Neil, Cut Bank, chairman; W. E. Rice, Great Falls; O. M. Webb, Sunburst; Roy C. Tarrant, Cut Bank; Howard Alger, Poplar, and R. P. Jackson, Great Falls, secretary. Attorney for the board is S. C. Ford, Helena.

Canadian tariff or proration?

Efforts of oil operators of Turner Valley, Alberta, to obtain tariffs on importations of crude and refined products from the United States, said to be needed if proration now set at 35 percent of potential is to be lifted and if Canadian operators are to obtain control of the Dominion market, will meet with opposition of other Canadian Provinces, it was indicated last week. The Canadian tariff board will hold a preliminary hearing on the producers' request for tariffs in Calgary, Alberta, on January 27, and will then adjourn to Ottawa where the hearing proper will open February 1.

It was announced from Regina that Saskatchewan and Manitoba governments will take joint action to protect against any increase in the tariff on refined products entering Canada from the United States and would also fight the proposal to place a tariff on crude coming in from Montana. At present there is no tariff on Montana crude, while the tariff on refined products is 1½ cents a gallon. The protest, it was indicated, would be entered by the Provincial governments on the ground that restrictions placed on the importation of United States products would increase costs to consumers.

Reports reaching Calgary from Montana last week indicated that a price war on crude was on the verge of

[*Continued on page 62*]

Oil and Legislators

Federal taxes on crude sales and refining processing may be repealed July 1 . . . Pennsylvania getting good returns on investigation questionnaires

THE possibility of some of the present federal taxes on oil being repealed were enhanced by action in Washington last week. This was the most important legislative development, but it was announced that questionnaires sent out in Pennsylvania's investigation of the oil industry are being returned in goodly numbers.

House committee recommends repeal of some oil taxes

Repeal, effective July 1, next, of the present taxes on the sale of crude petroleum, processing or refining of crude and gasoline recovered from natural gas was recommended by the Tax Subcommittee of the House Ways and Means Committee in its report on tax revision, submitted to the full committee January 14.

These are the so-called "hot-oil" taxes enacted as an adjunct to the National Recovery Act, it was pointed out, but do not relate to the excise taxes on imported oil.

With respect to the depletion provisions, the submittee reported that it had "discussed the question of percentage oil depletion, which has long been a subject of controversy.

"It is evident," it was pointed out, "the time element will not permit the subcommittee to present a recommendation on this subject, therefore this question has been passed over for the present and is referred to the full committee for future study and consideration."

Hearings on tax revision started January 15 before the full committee with Treasury officials testifying regarding the financial situation and the desirability of changes in the revenue acts. Beginning January 17, the committee will hear the views of business and industrial executives and others interested in the tax proposals.

Pennsylvania investigation questionnaires coming in

More than 6000 of approximately 35,000 questionnaires mailed to Pennsylvania producers, pipe line operators, refiners, holding companies and service stations in that state's investigation of all branches of the petroleum industry have been returned, Judge Ralph Smith, chairman of the Pennsylvania oil industry investigating commission, reported last week. The first batch of questionnaires were mailed late in December, with those to refiners going out only a week ago.

Answers to the forms, which seek information on advertising and publicity methods, production costs, taxes, labor organizations within the industry, posted prices of gasoline at different periods of the year, number of employes and their work week and the names of "industrial commercial research" associations within the industry, are coming in at the rate of 300 a week, Smith said. Several companies have asked for extension of time for gathering the information, but thus far these have been denied.

"There has been an evident spirit of cooperation from those subpoenaed," Judge Smith declared. "No company or official has indicated that it may protest against the investigation."

Meanwhile, Governor George H. Earle was considering calling a special session of the Pennsylvania legislature. If called, it will be for the express purpose of dealing with the state's hard coal problem, but the question is so closely linked with oil and natural gas production in the minds of some state legislators that oil and gas would be certain to receive some attention by the legislature. First, however, the governor is planning a conference with hard coal operators, who several months ago were given until January 1 to work out a plan for their own salvation. Judge Smith has indicated that his commission will not have completed its investigation in time to make recommendations to the legislature at a special session, if one is called

Labor Situation

Plan to seek Congressional investigation of Pine's labor activity at an early date . . . Pennsylvania hour law decision not expected before June now.

TWO important labor developments of the week were that an early attempt will be made to have Congress investigate the alleged violations of the National Labor Relations Act by W. B. Pine Oil Company, and that it will be June before the constitutionality of Pennsylvania's disputed 44-hour per week working law is determined.

May Investigate Pine's Activities

With the support of many members of Congress from oil states promised, Representative Lyle H. Boren of Oklahoma last week disclosed that at the earliest opportunity he will seek a hearing before the House Rules Committee on his resolution for an investigation of W. B. Pine Oil Company's alleged violations of the National Labor Relations Act.

Representative Boren stated that the oil workers unions have thrown their support to the measure as a test case to determine whether oil companies holding government leases can be forced to comply with the labor relations law.

The Pine concern is operating on leases on Indian lands in Oklahoma, and the Boren resolution charges that it has refused to comply with the labor law, and has not developed its leases in accordance with contracts made by the Indians with the approval of the Department of Interior, and they are accordingly being deprived of their royalties.

The congressman declared he had no desire to impair the validity of the company's leases, although he has asked the Interior Department to declare its bond forfeited, but that other companies operating under similar leases and complying with the law would be subject to unfair competition by reason of the Pine company's operations.

Approval of the rules committee is necessary before the resolution, which provides for the investigation by a select committee of five House members, can be brought into the House for a vote. Once committee approval is procured, Boren indicated he anticipated no difficulty in getting the measure passed.

Delay Pennsylvania Ruling Again

Determination of the constitutionality of Pennsylvania's 44-hour week law by that state's supreme court may not be made before June, it was indicated late last week. Meanwhile, enforcement of the act, which stands as a serious threat to operators of Pennsylvania's stripper wells, is curbed with respect to some 700 firms who have intervened in a case attacking its constitutionality.

Attorney General Charles J. Margiotti said he had run into a "snag" that will necessitate a hearing in Dauphin County court at Harrisburg. An effort was being made to arrange a set of facts agreeable to both those challenging the act and the state which would permit the supreme court to take original jurisdiction. The lower court hearing will be held January 17 on the state's objections to granting an injunction to the suit originally brought by A. Kane Manufacturing Company.

It was indicated that the county court hearing may be dragged out a month, in which case the matter will not find its way to the supreme court until its March session. A decision, then, might not be handed down before June.

Prevention of Oil-Field Emulsions

By J. S. SURFLUH
Standard Oil Company of California,
Los Angeles

ABSTRACT

THE author discusses the sources of emulsions in petroleum and suggests methods for their prevention—stating that emulsions can be reduced or eliminated by: *a*, reducing the degree of agitation (which is often caused by leaky pumps); *b*, producing physicochemical conditions unsuitable for emulsion formations; and, *c*, separating the water from the oil before agitation takes place. In conclusion, it is stated that some operators have effected greater economies by preventing emulsions than by improving dehydration methods.

This paper was presented at Eighteenth Annual Meeting, American Petroleum Institute, Chicago, November 11, 1937.

The statements and opinions expressed herein are those of the author, and should not be construed as an official action or opinion of the Institute, nor of this journal.

THE art of treating oil-field emulsions has been well developed, but still more effective results can be exected by eliminating the formation of emulsions to as great an extent as possible. The prevention of oil-field emulsions is now receiving more attention, but there is still much progress to be made. Dehydration is often one of the principal items of lifting cost; and, whenever this is true, the important subject of prevention should receive special attention.

It is the purpose of this paper to present practical results accomplished in California oil-field practice. Theoretical discussion will be made as brief as possible, inasmuch as this phase has been adequately covered.

The Causes of Emulsions

The well-known cause of oil-field emulsion is the agitation of oil and water in the presence of emulsifying agents. The permanency of the emulsion is dependent upon the severity of the agitation and upon the emulsifying agents[1] present. In many instances a great deal of violent agitation is required to produce stable emulsions. In other cases, it is necessary only to stir the oil and water for a few moments to produce stable emulsions. In the latter case there are certain emulsifying agents present which aid the production of emulsions greatly. Oils which have been exposed to the weather, as in sumps, fall into the latter class.

Emulsions are classified as permanent and temporary. A temporary emulsion will break down into oil and water by settling methods alone.

Any method of preventing the formation of emulsions in oil and water mixtures must either reduce the degree of agitation or must employ the use of chemicals[2] to produce physicochemical changes which will aid in emulsion prevention.

The separation of all of the water from the oil before the mixture has been agitated severely is a third possibility which can occasionally be used.

Sources of Emulsions and Their Prevention

Possible sources of oil-field emulsions and their respective remedies can be classified as follows:

Turbulence in Formation. There is no conclusive evidence available to prove that emulsions are produced in the formation; therefore, no additional discussion will be given.

Oil-Well Pumps. From operating data, we conclude that oil-well pumps in perfect condition will produce some emulsion, provided the oil and water pumped can be emulsified readily; however, the quantity of emulsion produced is usually small until the pump becomes worn. When the oil-well pump becomes worn, the emulsion content of the oil increases greatly. Our knowledge of emulsions makes it evident that anything which will reduce the turbulence in the pump will aid in the elimination of emulsions; therefore, the following remedies should be considered in correcting conditions causing emulsions in oil-well pumps which are in good condition:

1. Decrease pumping speed.
2. Use of a gas anchor.[3,4]
3. Decrease plunger spacing.
4. Maintain pump submergence.

Operators report that they have secured beneficial results by observing these precautions.

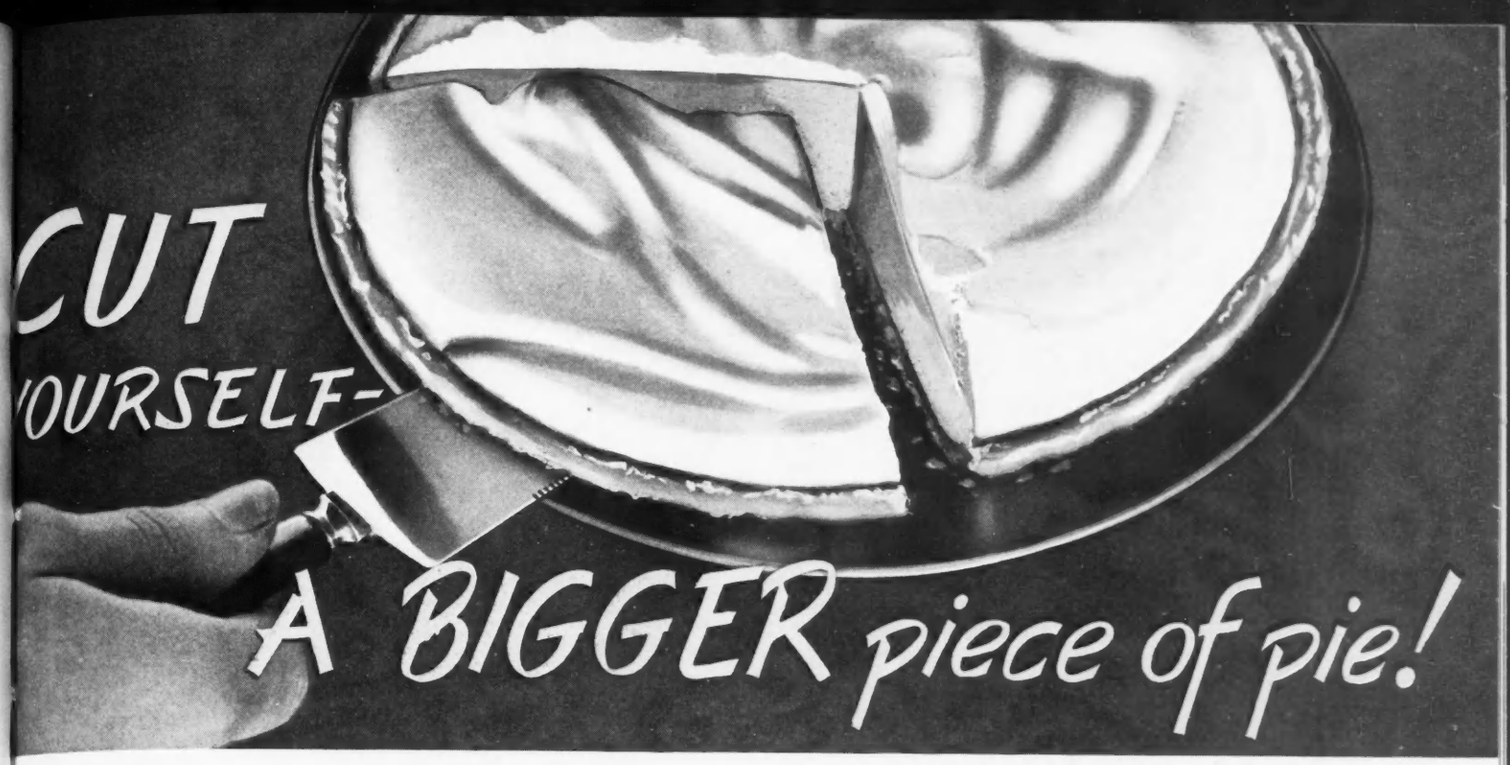
One instance was reported in which re-spacing the pump reduced the cost of chemical dehydration about 50 percent.

It is believed that pumping wells which are producing excessive quantities of emulsions should be investigated for the above possible causes of emulsions.

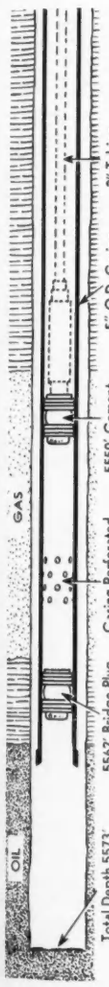
A preliminary test to determine the ease of emulsifying the oil will be of benefit. If the oil is easy to emulsify, all of these items should be considered.

The greatest source of emulsions is experienced from worn pumps. Dehydrating costs increase if worn pumps are used, because the emulsion content increases so greatly. For example, on one lease of 20 wells, 2 badly-worn pumps increased the electric-dehydrator cuts from 1.5 to 4.0 percent, requiring the use of chemical to keep the cuts below 3 percent (pipe-line requirements). On another lease chemical dehydration was used entirely, treating 18 wells. There were times when, because of worn pumps, the chemical consumption had to be increased 100 percent.

In fields in which the production is practically free



BY REDUCING THE GAS/OIL RATIO IN YOUR OIL WELL THROUGH THE APPLICATION OF A CEMENT SQUEEZE JOB



A typical Cement Squeeze Job (done with a Baker Cement Retainer) to effect reduction of gas/oil ratios.

A Tomball Job

The gas-oil ratio in Shell Petroleum Corporation's Pitchfork 1, Tomball, Texas, producer, has been reduced from 58,000:1 to 400:1 by an effective squeeze cementing job that shut off the upper gas stratum without damage to the main body of the oil zone. This well was completed originally at 5573 feet, and the 5-inch casing had been cemented at 5565 feet. The indicated bottom-hole temperature was 163° F. The gas-oil ratio was so high that a reduction was required to prevent the production of the gas allowable far ahead of the oil allowable. The Tomball field produces from a very thin and gassy formation, and the high gas-oil ratio has reduced the production of oil in many wells.

A bridge plug was set at 5562 feet, the casing perforated from 5556 to 5553 feet, and a cement retainer set at 5550 feet. The perforations were placed as nearly as possible opposite the offending gas stratum. A small amount of fresh water was pumped into the formation ahead of the cement, the initial pressure having been 2000 pounds and the final pressure 1500 pounds. Seventy-five sacks of cement were mixed and squeeezd through the perforations, the initial pressure having been 1500 pounds and the final pressure 2200 pounds.

The cement, retainer and bridge plug were drilled out, and the well brought back on production with a potential flow of 176 barrels of oil through a quarter-inch choke. The gas-oil ratio was only 400:1, a radical reduction from the original ratio of 58,000:1. A cement retainer was used as a bridge plug.

In this well the cement set readily in the gas sand, but did not affect the oil zone. Although the cement was directed primarily toward the offending gas formation, no special effort was made to confine it to a very small area near the perforations. Any cement that contacted the oil stratum apparently did not set in that part of the formation.

High gas-oil ratios in the Tomball field have given trouble since the first wells were completed, and operators have made various efforts to reduce the flow of gas. In many wells the maximum quantity of gas is produced long before the oil allowable is obtained. It is obvious that the satisfactory reduction of gas-oil ratios will permit production of full oil allowables in wells that now produce more than 2000 cubic feet of gas per barrel of oil.

Excerpt of article in the Oil Weekly of November 8, 1937 by Associate Editor, Brad Mills.

HERE'S HOW A SQUEEZE JOB (DONE WITH A BAKER CEMENT RETAINER) GIVES YOU A BIGGER SLICE OF THE PIE . . .

Excessive gas/oil ratios present an important problem in many fields. For example, in certain Mid-Texas fields, the maximum gas/oil ratio (governed by State law) is such that operators have been forced to tolerate a limited production of oil in order to meet the gas/oil ratio requirements.

Cement Squeeze Jobs, (such as the one herein described and illustrated) are becoming more and more popular as a means of cementing off the offending gas strata to bring the well within the gas/oil ratio allowable . . . and the tool used to accomplish this important operation is the Baker Cement Retainer (referred to in the accompanying excerpt as the "cement retainer.")

If excessive gas/oil ratios is a problem which confronts you, we suggest an investigation of this Baker Cement Retainer. What it *is* doing, and *has done*, for other operators in solving this particular problem, it can undoubtedly do for you.

Complete details concerning the design, operation and many important applications of the Baker Cement Retainer can be secured from any Baker representative or from any one of the conveniently located Baker offices.

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BAKER CEMENT RETAINER

TABLE 1

Increase in Emulsion with Increase in Age of Pump

Well No.	Length of Time Pump Was In Service (Mos.)	PERCENT WATER AND EMULSION		
		Total	Water	Emulsion
1	3	5.0	4.5	0.5
	18	6.0	4.0	2.0
2	22	5.0	2.5	2.5
	34	11.0	1.0	10.0
3	1	10.0	4.0	6.0
	12	12.0	2.5	9.5
4	4	7.0	3.0	4.0
	15	22.0	13.0	9.0
5	1	28.0	4.0	24.0
	12	44.0	0.0	44.0
6	14	13.0	10.0	3.0
	27	35.0	3.0	32.0

of sand, pumps wear very slowly, and the emulsion content of the pumped oil increases slowly with the age of the pump.

The examples shown in Table 1 will serve to prove this point.

Some oils cause excessive pump wear, usually because of sand—resulting in the necessity of pulling pumps every month or oftener.

As long as the dehydrating costs do not increase appreciably and the production rate holds up, there is no need to pull the pump, even though it is creating a great deal of emulsion. An economic balance should be maintained between the cost of pulling pumps and the dehydrating cost. The lifting cost of oil can be increased to more than offset the saving in dehydrating cost if one becomes over-zealous in preventing emulsions. Usually it is not economical to pull well pumps until the production rate decreases appreciable due to wear.

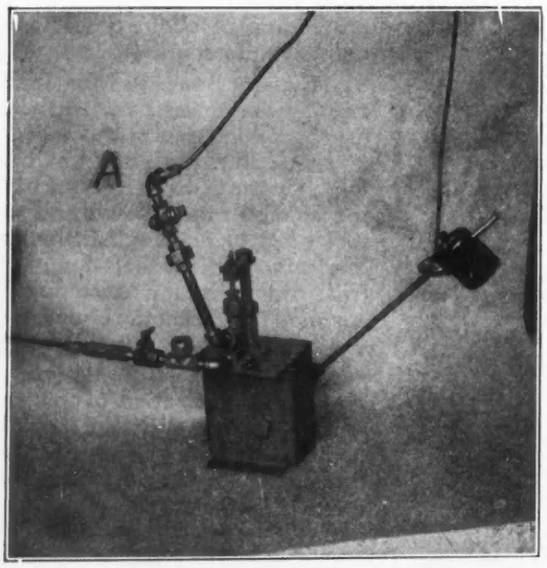

FIGURE 1

Simple Reciprocating Pump Used for Injecting Chemical

Some oils are difficult to emulsify, and the oil can be dehydrated by settling the water. The well pumps in these instances do not cause more than 1 to 3 percent of emulsion, most of which is unstable, and will resolve into oil and water if allowed to stand for one or more days. Some oils require heat to settle the

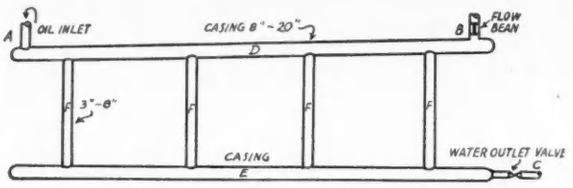

FIGURE 2

Down-the-Hole Chemical-Treating Hook-Up

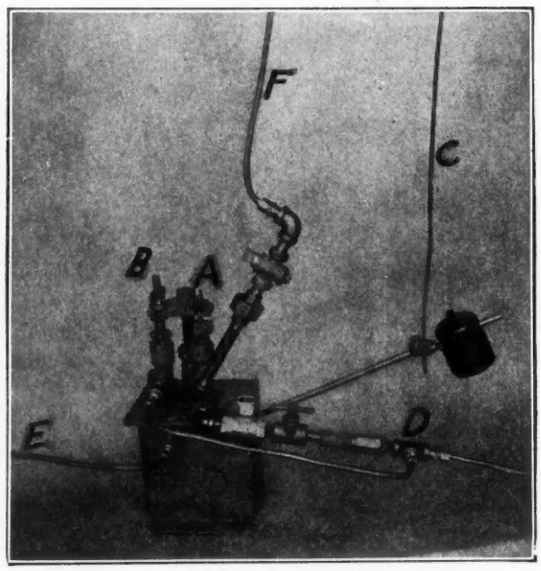

FIGURE 3

Combined Chemical and Water Pump

water, the emulsion being just a little tighter, or the difference in specific gravity between the oil and water being very small. There are many leases in California producing oil which is dehydrated by settling alone. Many others require heat. Some oils require constant pump vigilance to be treated successfully by settling methods.

The injection of chemical down the casing of a pumping well will often prevent the formation of permanent emulsions in the pump. In many instances it is cheaper to treat the oil in this manner than to inject the chemical into the oil at the well head or in the lead line. When casing injection fails, it is because re-emulsification takes place due to excessive agitation in the tubing or lead line, or the chemical does not reach the bottom of the well. Sufficient chemical should, of course, be used to dehydrate the oil satisfactorily.

The cost of "down-the-hole" treatment will usually vary from one to five mills per barrel of net oil. The chemical is usually injected by means of a simple reciprocating pump operated by the beam of the well. Figure 1 shows such a pump. The chemical container is not shown. Pipe **A** is the suction line. It was raised to a vertical position while taking the picture, but is ordinarily in a horizontal position.

The chemical should be introduced into the casing commingled with water or oil, so that it will be carried down to the fluid in the well. The modern trend is to use water as a carrying agent, regardless of whether the chemical is water-soluble or not. One to five barrels of water are usually used per day, depending on the size of the well. If the water supply has a pressure in excess of the casing pressure, the water can be directly connected to the casing from

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"Now all I ask of you fellows is to get a bit louder and tell the world you have the champion of trucks—a truck that doesn't know the meaning of the word 'quit.' Now my friends, all this is coming from a bystander with years of experience with trucks—including eighteen months with the transport in France, where I thought we had tough going. But this place has shell holes licked a mile, and your Internationals are licking the worst trucking conditions in the world.

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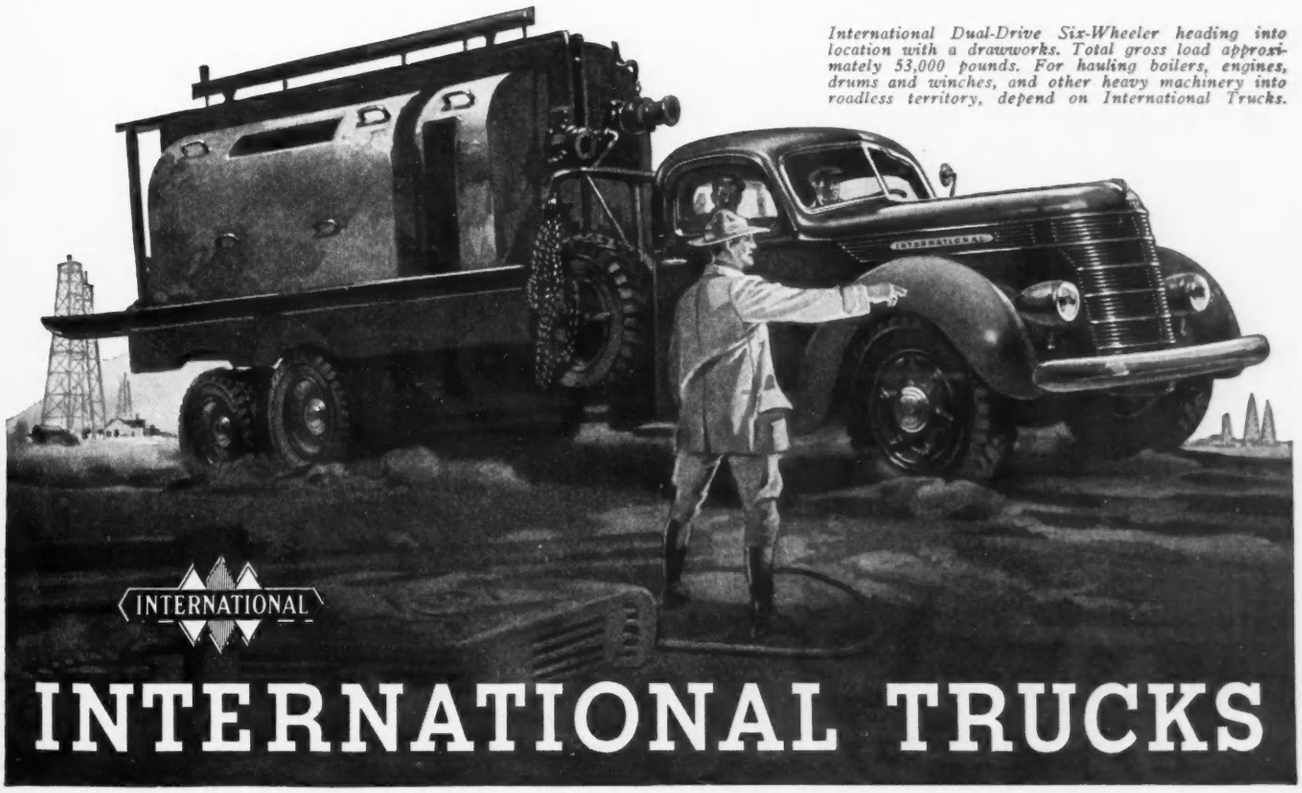

the water main, using ¼-inch pipe or copper tubing, and regulating the flow with a valve. Figure 2 is a diagrammatic sketch of such an installation. The water-supply line, with check valve to prevent a reversal of flow if the casing pressure should become greater than the water pressure, is shown at the right. Valve **A** regulates the rate of flow of the water. The rate of flow can be checked approximately by closing valve **B** and opening trycock **C**. Chemical from the chemical pump enters the water line at **D**. The line is packed off in the casinghead connection **E**. Often about 3 feet of flexible tubing is inserted into the casing as shown, although the line can usually be terminated at the casinghead connection if the gas outlet is on the opposite side of the casing. The water is pumped down the casing if the water-main pressure is too low. In Figure 3 a single operating mechanism is used to operate a ¼-inch or ⅜-inch chemical pump **A** and a ¾-inch water pump **B**. Throttle cord **C** is used to operate the pumps from the beam. The water is injected into the chemical pump discharge at **D**. The water-pump and chemical-pump suction lines are represented by **E** and **F**, respectively. The cost of this chemical-pump and water-pump installation is about $40. The cost of the chemical pump alone with all fittings is about $30.

Tests must be conducted for each lease, and on representative individual wells, to determine whether "down-the-hole" treatment is justified. Electric dehydration may be cheaper, or treatment further along the oil-gathering system may be more economical.

Tubing Turbulence

Leaky Tubing. Tubing leaks, consisting of splits or leaky collars, produce very tight emulsions in pumping wells, and are often difficult to find if near the top of the string of tubing. Old strings of tubing cause a great deal of dehydration trouble because of leaks. The remedy is obvious.

In one instance, the oil from a pumping well was being dehydrated by passing it through an excelsior-packed column and a settling tank. The cuts from the well suddenly showed 5 percent of very tight emulsion, which, of course, made it necessary to use chemical to dehydrate the oil. The production of the well had not decreased sufficiently to be noticed. The pump was pulled, but no wear was discovered. The trouble still persisted, and the tubing was then pulled. Two very small leaks were found near the top of the tubing.

Slippage and Gas Agitation

In flowing wells, and especially gas-lift wells, slippage of the rising column of fluid will, of course, produce emulsions. The oil and water in the tubing of flowing and gas-lift wells is often completely emulsified, with no free water present, according to samples taken in bombs (see **B**, Figure 7) from a connection on the upstream side of the flow bean. On the other hand, flowing wells and gas-lift wells, producing at uniform rates without much turbulence, produce a great percentage of free water which can be settled out. It is believed that the correct size of tubing will obviate some slippage. Optimum gas/oil ratios will probably also help. However, no data of a practical nature are available to substantiate these statements.

From the known effect of gas in lead lines, it is believed that emulsions are formed in pumping-well tubing strings when the gas/oil ratio is high and the oil is easy to emulsify. The use of gas anchors should be of some benefit, as would high fluid levels and optimum casinghead pressures. These are merely suggestions which appear to be logical. No actual data have been secured to prove their effectiveness.

Chemicals are sometimes injected into the casing to prevent permanent emulsions in the tubing. In flowing and gas-lift wells, the cost of chemical treatment will vary from 3 mills to 1 cent per barrel of net oil. The casing pressures on these wells are so high that the pumps used for injecting must be well constructed. Motor-driven chemical pumps using ¼-inch to ½-inch plungers cost from $75 to $110 (see Figure 4). The chemical pump can be discharged directly into the suction of the triplex pump if the casing pressure is too high. From 5 to 20 barrels of water are pumped into flowing and gas-lift wells per day. Water is usually used as a carrying agent, although oil can be used. Oil is much more troublesome, and water often gives better results. Carrying-agent pumps are usually triplex pumps, and cost from $250 to $750. In Figure 5 can be seen a triplex pump, **A**, used for pumping water (carrying agent) and, **B**, a chemical pump, mechanically connected to pump **A**, discharging into the suction line of pump **A**. Figure 6 shows a ½-inch chemical injection line, **A**,

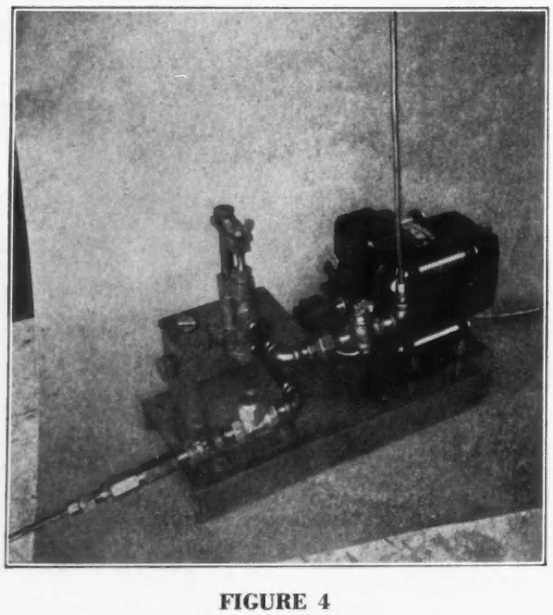

FIGURE 4
Motor-driven Injection Pump

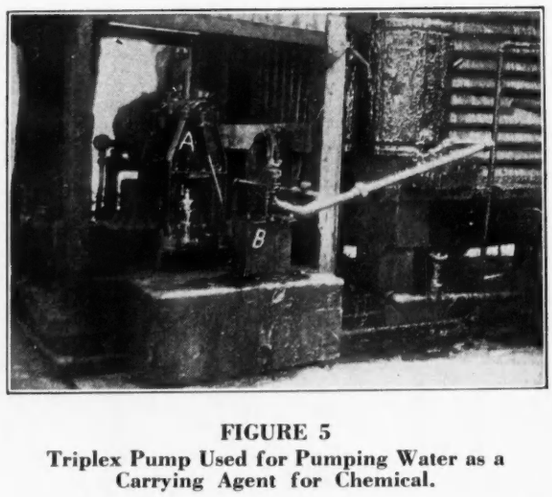

FIGURE 5
Triplex Pump Used for Pumping Water as a Carrying Agent for Chemical.

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OBTAINING MAXIMUM PRODUCTION THROUGH

Efficient Operation of Sub-surface Pumping Equipment

PART II
Slippage

By DON E. SCHNOBRICH

IN PART I of this series the author discussed subterranean hazards—the problems of corrosion of pumping equipment. In the present installment he deals with clearances of pump parts and the destructive effects of misadjustment along with losses in efficiency brought about by lack of proper adjustment.

IN view of the fact that the fundamental principle underlying the successful operation of all metal-to-metal fluid pumps is in the efficiency of its seal between liners and plunger—it is readily understood why operators attach such importance to this feature and why every effort is extended to obtain as near perfect a fit and seal between these parts as possible.

Since the first introduction of the metal-to-metal seal in working barrels, the field man has been painfully conscious of one major problem—"slippage", and its accompanying destructive wear and serious loss of production. If not continually on the alert for this condition, or if unable to diagnose it when it occurs, the operator frequently finds himself at a loss to account for the gradual but positive drop in production and often installs new equipment throughout, without first taking the necessary precautions to safeguard against repetition of the condition. Naturally, with the fault constantly reoccurring, this eventually involves itself into an expensive proposition.

It is true that slippage is more or less controlled or controls itself, in shallow wells, but by no means can this be said to be true of deeper production. Instead, the situation proportionately becomes more difficult to handle as the depth increases. The reasons for this, of course, lies in the greater fluid column, with a correspondingly greater weight on the top plunger area, and consequently the greater tendency towards slippage. The weight of the fluid column on the top plunger area exerts a terrific penetrating effect which, as its only outlet, is vented upon the clearance between plunger and liners. The fluid, surging back through this clearance, is known as slippage or plunger-leakage, and its effects are usually costly and troublesome. As a matter of fact, it is the contention of many manufacturers and engineers that, with the possible exception of extreme abrasive conditions, the surge of this fluid back through the plunger-liner clearance is responsible for greater wear of moving parts than any other factor.

Figure 4 shows a typical example of the effects of slippage on the chrome plunger. Here, it will be noted, the surge of the fluid has washed away a large portion of the chrome plating exposing the dull steel beneath, and reducing the sealing efficiency of this particular plunger fully 30 percent. Production, in the well in which this plunger was operating, dropped from 160 barrels to 85 barrels in less than 60 days.

Combating Slippage

In combating slippage, a number of necessary factors are taken into consideration. In the first place, it is known that leakage past the plunger is in direct relation to the length and diameter of the plunger, the depth of the well, and the viscosity of the fluid. Of these the operator is allowed only the first to work upon—the length and diameter of the plunger.

Fugure 5 shows the results of a well-known experiment conducted by a California operator in hopes of determining the amount of slippage in relation to the diameter of the plunger. A well, 6000 feet deep and producing 33 gravity oil, was chosen for the experiment. The pump was run without standing valves, the tubing being filled from the surface, and readings as to leakage were obtained by noting the amount of fluid necessary to keep the tubing full at all times. Misleading results due to plunger sticking as the closer fits were approached, were insured against by dynamometer readings taken at frequent intervals. The same number and length of stroke was used in each run and leakage was figured over a 24-hour period.

It will be seen in Figure 5 that minus five fit (0.005) plunger allowed a leakage of 27 barrels per day, the minus four and three cutting an appreciable decrease, and the minus two (0.002) holding

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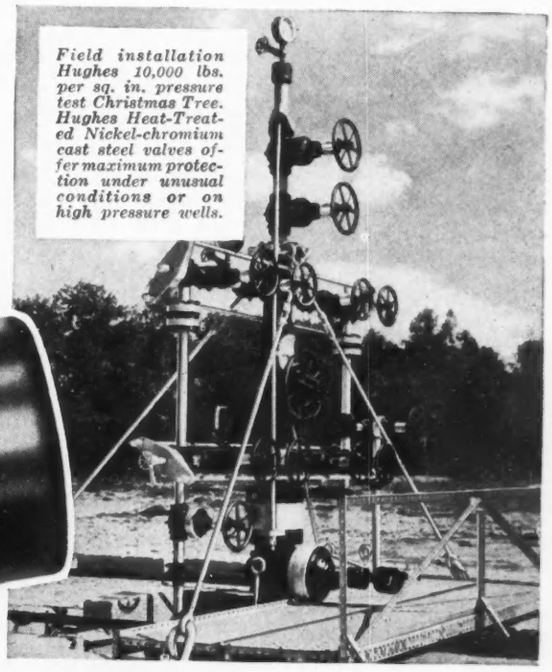
This Hughes Nickel-chromium Cast Steel 10,000 lbs. per sq. in. pressure test valve held up to 28,500 lbs. per sq. in. in a "Destruction" test

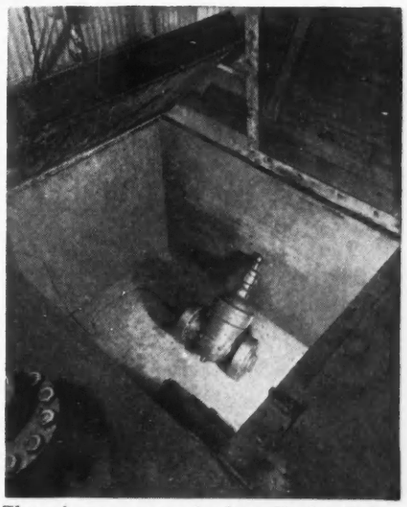
10,000 lbs. per sq. in. pressure test Manifold Valve manufactured by Hughes Tool Co., Houston, Tex. Hughes 10,000 lbs. per sq. in. test valves are available in either screwed or flanged ends.



Field installation Hughes 10,000 lbs. per sq. in. pressure test Christmas Tree. Hughes Heat-Treated Nickel-chromium cast steel valves offer maximum protection under unusual conditions or on high pressure wells.

Increased strength and safety, you'll agree, are essential in controlling well pressures stepped up in recent years from 1,000 to 3,000 to 5,000 lbs. per sq. in. And every step of the way, increased strength and safety have been built into Hughes high pressure valves and fittings.

For example, in keeping with a 25 year old policy of *anticipating* the needs of the Oil Producing Industry, Hughes valves are now tested to 10,000 lbs. per sq. in. for 5,000 lbs. working pressure. And to allow an ample factor of safety these valves are cast of Nickel-chromium steel. Does this alloy furnish the required strength? Note the "Destruction" test data – and the analysis and properties of cast Nickel-chromium steel:



There is no guesswork about Hughes Valves withstanding High Pressure. Hughes Tool Company finds out how much they will stand by means of perodical "Destructive" Tests conducted in this special chamber. An unusual and effective phase of the Engineering and Development Laboratory work.

ANALYSIS		PHYSICAL PROPERTIES
Carbon	0.32%	(After heat treatment)
Manganese	0.75%	Tensile strength, 100,000 psi.
Phosphorus	0.025%	Yield point, 65,000 psi.
Sulphur	0.035%	Elongation in 2", 22.5%
Nickel	1.50%	Reduction of area, 40.0%
Chromium	0.40%	Izod impact, 45 ft. lbs.

Increased density and uniformity of grain structure results from alloying steel with Nickel. Increased strength—and a substantial factor of safety at high pressures—is assured. Consultation pertaining to high pressure castings is invited. Please address:

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CAST STEEL

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL ST., NEW YORK, N. Y.

slippage to a minimum of 1.3 barrels.

In remedying the problem of slippage through the use of a larger plunger in order to obtain the closest possible seal, operators proceeded with caution. The disastrous effects of "sticking" or "jamming" were well known and all precautions were taken to prevent such an occurrence.

Previously it was the practice among field men to use as the starting plunger in a new barrel, a fit of five thousandths. The minus five still finds widespread use, particularly in fields producing heavy crude or in high subterranean temperatures.

In other fields, however, especially in the Mid-Continent area where depths of 4500 feet and more are being pumped, the use of minus five plunger was virtually a waste of time. The increased depth, with the proportionately greater plunger load, encouraged slippage to the extent as to prove the minus five impractical. Then, too, in wells producing oil of 35 gravity or higher, the five thousandths clearance was apparently unable to hold any sort of satisfactory seal. A minus four was in far more general use, with some operators venturing to a minus three.

Insert Pumps

About this time in Oklahoma City and surrounding fields, the deep well insert pump was showing a remarkable increase in efficiency with the starting plunger as a minus two and later, as the liners underwent a certain amount of wear, replacing this with a minus one. Most insert pumps of this locality were equipped with either 48 or 60-inch plungers in working barrels of 12 to 20 feet lengths and 1¼ to 1¾-inch bore.

Operators in Northern Oklahoma, however, confronted with the necessity of moving a considerable volume of water in order to obtain the oil, were constantly aware of the limited capacities of the insert pump and many changes were made to the larger tubing type pumps. Equipped with a 2¼-inch plunger, these pumps offered a much greater theoretical production.

Unfortunately, it was found in the majority of instances that the additional production expected with the large pump did not always materialize. Due to depth, the greater plunger load, and the comparatively loose fit, it was found that slippage increased to such an extent as to defeat the larger pumps purpose.

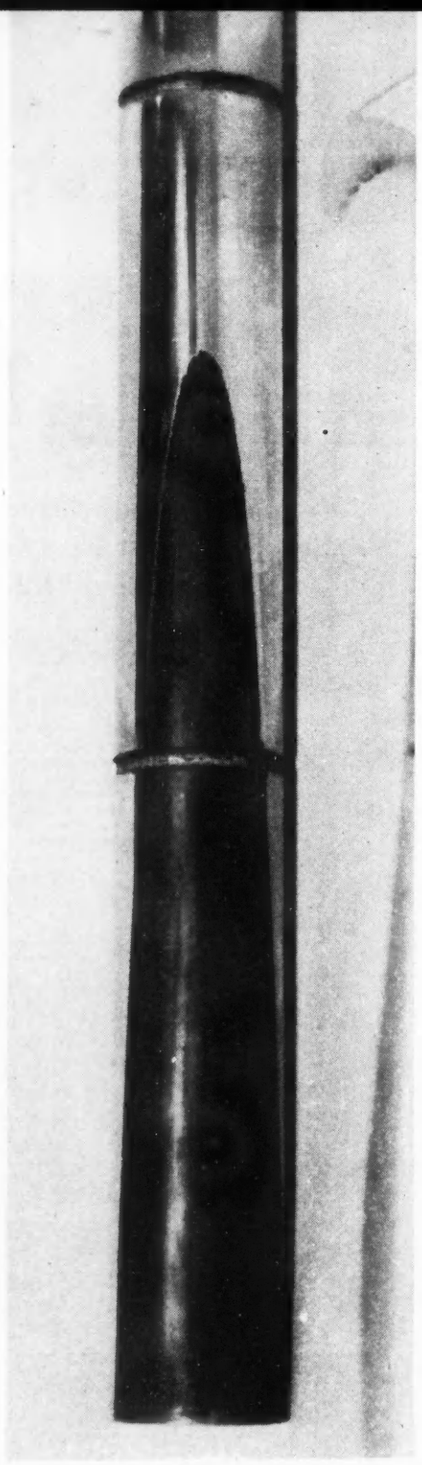


FIGURE 4

The destructive effects of fluid wash due to slippage on a chrome plunger. Sealing efficiency in this case was reduced 30 percent.

The remedy for this situation was of course seen in obtaining a closer seal with the larger plunger. Here, however, a number of unlooked-for difficulties were encountered and it was discovered that, whereas the insert pumps could be efficiently operated with the minus two fit, the larger plungers of the tubing-type barrel could not be pressed beyond the minus four without serious burning and shearing of the plunger shortly after insertion.

Chrome Plungers

Delving into the situation, it was discovered that the steel plungers ordinarily used in the tubing-type barrels were not adaptable to the closer seal. Steel, with its high coefficient of friction, jammed and stuck when fits beyond four thousandths were attempted. Operators, convinced that the use of steel plungers in the close seal was not only impractical but practically impossible—turned next to the use of chromium-plated plungers as a possible solution of their problem.

Chrome plungers, long known for their corrosion resisting properties and their use in obtaining the close fit in insert pumps, proved ideally adaptable to the new situation. The extremely hard surface of the chrome plate provided a frictionless bearing and showed no signs of sticking or burning in a perfectly aligned pump up to two thousandths fit (2.248).

The use of the close fit proved, especially in fields producing a high gravity oil from moderately low depths, as a highly efficient practice. Not only was slippage held down to a minimum, but increases in production from 10 to 25 percent were noted due to the additional fluid lifted with the more perfect seal.

Two important factors, however, are to be necessarily considered in the successful operation of the minus two chrome fit in the tubing-type barrel. They are: alignment

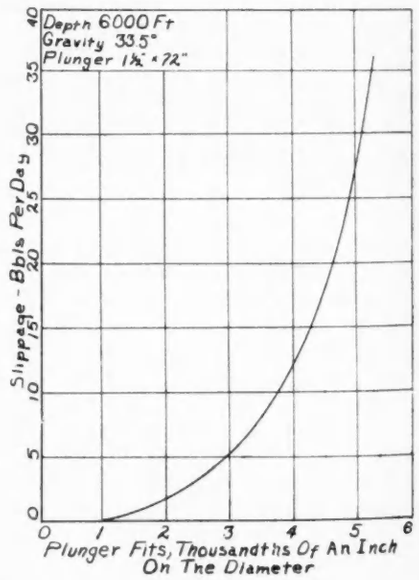
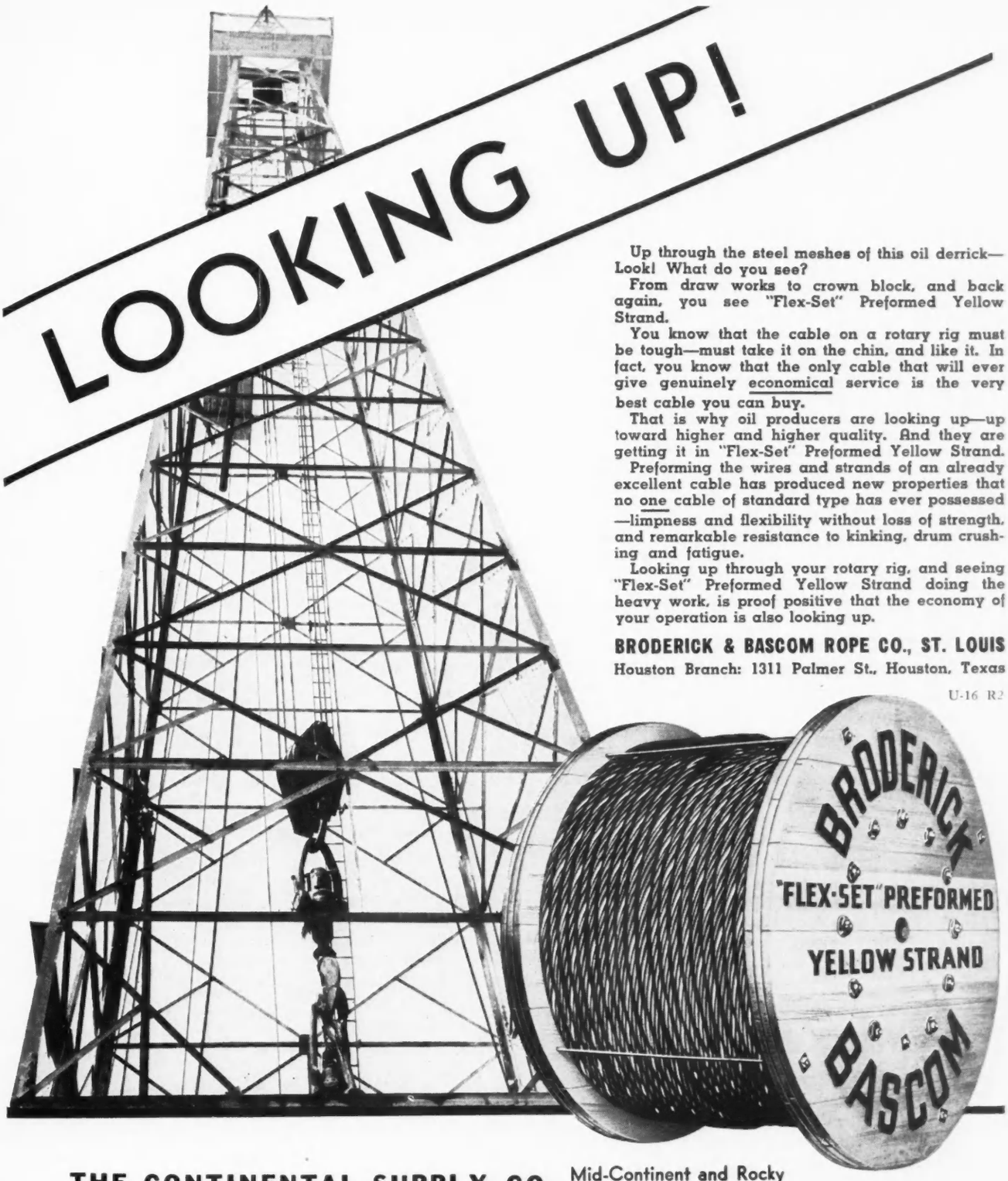


FIGURE 5

LOOKING UP!



Up through the steel meshes of this oil derrick—Look! What do you see?

From draw works to crown block, and back again, you see "Flex-Set" Preformed Yellow Strand.

You know that the cable on a rotary rig must be tough—must take it on the chin, and like it. In fact, you know that the only cable that will ever give genuinely economical service is the very best cable you can buy.

That is why oil producers are looking up—up toward higher and higher quality. And they are getting it in "Flex-Set" Preformed Yellow Strand.

Preforming the wires and strands of an already excellent cable has produced new properties that no one cable of standard type has ever possessed—limpness and flexibility without loss of strength, and remarkable resistance to kinking, drum crushing and fatigue.

Looking up through your rotary rig, and seeing "Flex-Set" Preformed Yellow Strand doing the heavy work, is proof positive that the economy of your operation is also looking up.

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THE CONTINENTAL SUPPLY CO. Mid-Continent and Rocky Mountain Distributors

"Flex-Set" Preformed YELLOW STRAND

of the liners, and methods of stroking.

Correct Alignment Indispensible

As a matter of fact, in considering these features, the correct alignment of the pump is of primary importance regardless of plunger fit or size. Incorrectly or improperly aligned liners result not only in a rapid destruction of the plunger but in an irregular and premature wear of the liners themselves. In aligning a pump, moreover, for the minus two fit, the procedure is much more painstaking and exact than in aligning for the minus four or five fit. Frequently a pump will appear to be in perfect alignment when tested with a minus five, but will prove to contain numerous tight places and mis-alignment clicks when tested with the minus two. Extreme care and caution is used by trained men with special equipment in aligning for the use of the closer fits.

Procedure in stroking and spacing is also necessarily modified when employing the closer seal. Where it had previously been permissible to use a seven-foot barrel and allow the plunger to protrude beyond the top collar a distance of two feet or more upon completion of the up-stroke, this practice was impractical when used in connection with the closer fit. The reason for this lay in the greater possibility for burning and shearing the chrome. The plunger, in starting back into the barrel upon completion of the up-stroke, had only a portion of its length anchored in the liners, and consequently was much more liable to "stuttering" or "buckling", with accompanying destructive effects of the chrome plating.

To remedy this situation it was necessary to either shorten the stroke so that little or no part of the plunger protruded beyond the top collar at the finish of the up-stroke, or in employing the use of a longer barrel. Inasmuch as the shorter stroke correspondingly cut down production, the use of the longer barrel was usually resorted to instead.

The condition of the well and the gravity of the fluid also play an important part in the efficient operation of the close seal. In wells producing a crude of 10 to 20 gravity, the use of the minus two would not only be impractical but unnecessary. Ordinarily, in crude of such density and in a shallow well, the viscosity would be such as to aid in sealing

FIGURE 6
Showing the beginning of a fluid wash at a groove while the remainder of the plunger is comparatively unaffected.

a generous clearance rather than encouraging or promoting "slippage."

Plunger Types

In discussing the subject of plungers with the field man and the efficient operation of the various types in different conditions, one is almost certain to find a wide variance in personal opinion. Often this is accounted for by the experiences of the field man in contrasting conditions found in different localities but, more often than not, it is the individual championing his own choice and what, in his opinion, is the best type for the condition.

Such plunger compositions as steel, chrome, bronze, stellite ringed, grooved, plain, alloyed, stainless, etc., all enter into the various arguments among the field men and, although every major pump manufacturer markets these types for definite abnormal conditions, the fact still remains that no set rule is followed or applied by the average operator.

Undoubtedly commanding more than its share of controversy among the field men today, is the question of grooved and plain plungers. Mechanically, the difference is slight but in operation results are often varied.

The majority of grooved plungers are either steel or chromium plated and are cut, every certain amount of inches, in grooves 5/32-inch deep. The number of grooves and the space between depends largely upon the request of the operator and the length of the plunger. Usually, from 4 to 15 grooves are used.

Ordinarily, it would not seem that such a minor change as grooving could seriously effect the efficient operation of any one well. As a matter of fact, however, when it is realized that the entire principle of the metal-to-metal working barrel is centered about the sealing efficiency of the plunger in the liners, it is readily seen that a loss or gain of several barrels per day could be directly traceable to any one of several factors concerning the sealing features.

Originally, it is believed, grooved plungers were offered for one basic reason, that of mechanical impossibility to machine a plunger absolutely true, in perfect alignment, and of dimensional perfection. The grooving, it was reasoned, would allow the plunger flexibility enough to correct any irregularities in itself and also to conform to any variation in working barrels' interior. It is the contention of one manufacturer that a turbulence of the fluid is set up in the grooves thereby obtaining a close sealing effect in a comparatively looser fit plunger.

However, the arguments in favor of the grooved plunger center about its greater sand lifting properties and its easier self-lubrication. Argumentors opposed to the grooved plunger, however, pointed out its greater susceptibility to fluid wash which usually begins in the immediate vicinity of the groove.

Figure 6 illustrates this point, showing the chrome at the far sides of the groove as intact and unaffected while that in direct contact with the groove is beginning to wash and will eventually spread up and down its entire length, destroying its sealing facilities.

One fact is remembered in choosing between these two types and that is, granted that all arguments offered by both sides are correct, in correcting one condition there is danger of aggravating another. Hence, if the operator chooses the grooved in hopes of moving sand, he must also remember that he automatically exposes himself to a greater possibility for slippage due to the susceptibility of the grooved to washing.

In many instances the intelligent reasoning of the operator will find a solution to the situation. If the particular well whose equipment is under question is deep, of large tubing, and of high gravity oil, slippage is a vital factor and the use of the grooved is not considered advisable by many operators. On the other hand, however, if there is a presence of sand, the well is shallow, the crude heavy, slippage is not found to be so prevalent and the grooved is satisfactorily employed.

This fact is true of all types and compositions of plungers, regardless of make or manufacture. As stated before, each type was developed for one definite purpose and, naturally performs best when so applied.

This is the second of a series of three articles. The third and concluding installment will appear in an early issue.

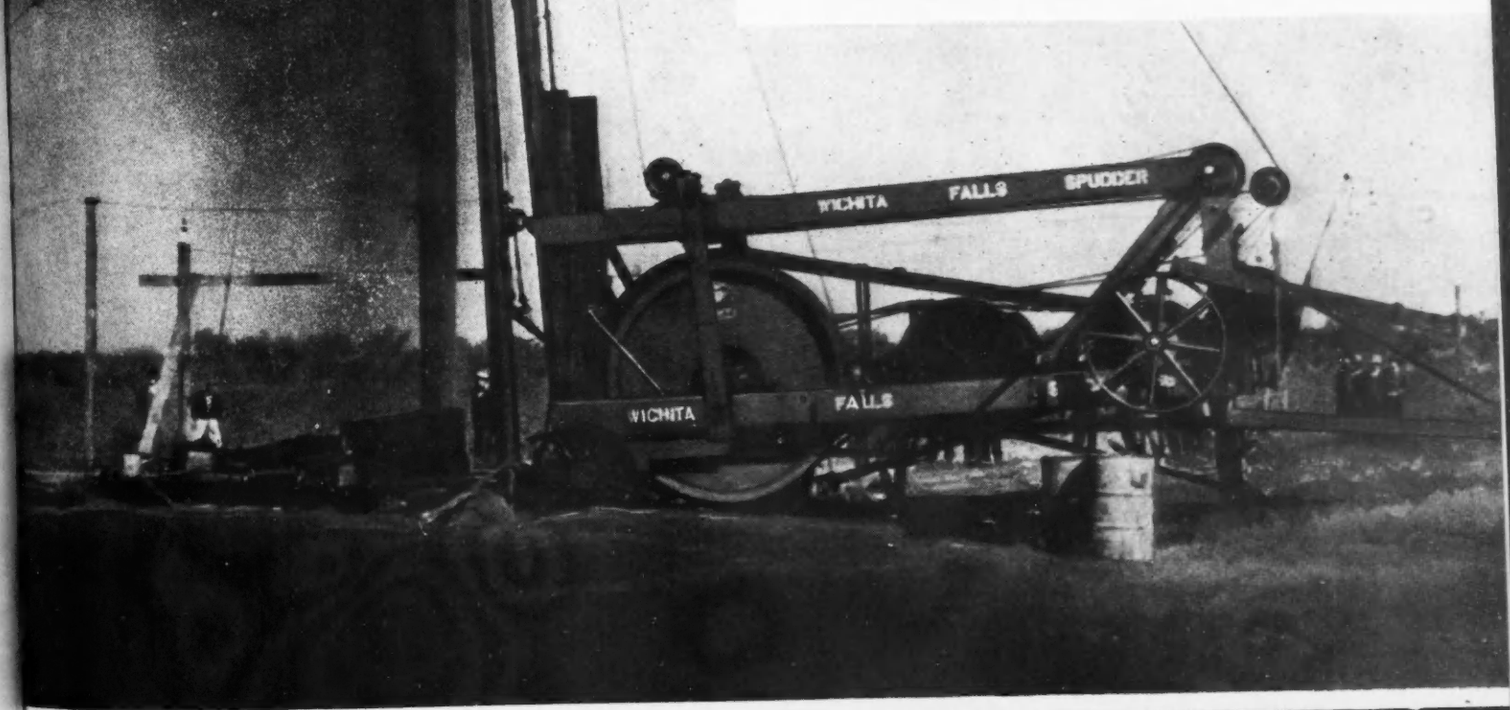
"KING"
of all Portable
Drilling Machines
The Ball and Roller
Bearing Spudder

WICHITA FALLS SPUDDERS

MANUFACTURED BY

CLARK Machine Co.

WICHITA FALLS
TEXAS

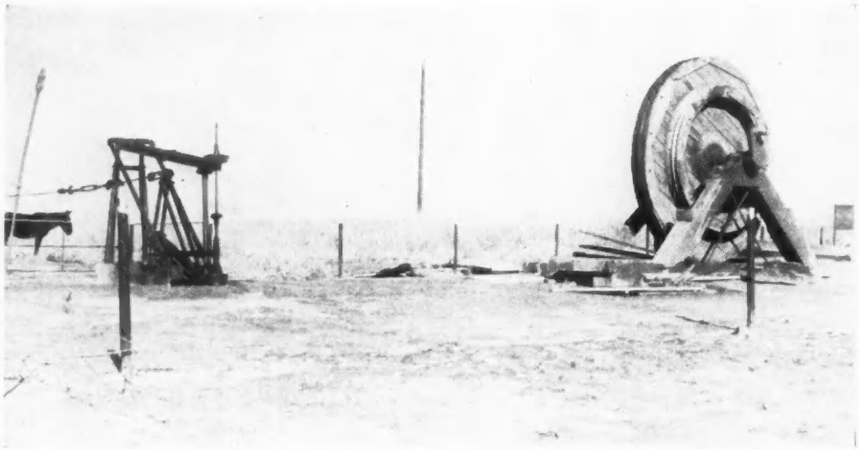


SEND FOR OUR NEW 1938 ILLUSTRATED CATALOG

THEY DO COME BACK

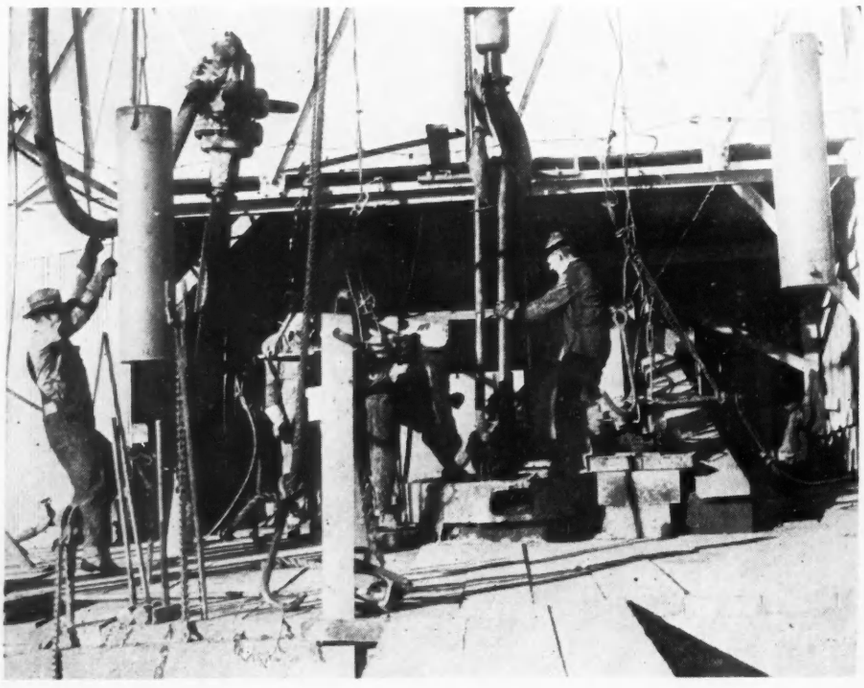
for instance the deep zone at K M A

Old K. M. A.



PROGRESS: Once upon a time a well 1700 feet deep was such a pumping load that it required a standard rig unit. Later it went on a jack and became typical K. M. A. shallow production.

New K. M. A.



SPACING: Majority of lease owners favor 20-acre spacing, and the proration order of the Texas Railroad Commission encourages that drilling density. But early development has been on 10-acre sites and that seems certain to continue.

Where

The 30,000 acres now proven call for 3000 wells.

Another 10,000 acres are in the drilling play and the leasing play covers 100,000 acres.

Production is coming from 200 feet down structure.

Recovery is estimated at 7500 barrels per acre.

Wells cost $25,000.

94 wells are producing of which **79** are flowing and 15 pumping.

114 wells are drilling

AFTER OIL DYNAMITE: In K. M. A. is the paradox of shooting crews waiting for casing laden trucks to pass before discharging dynamite. The seismograph came in after oil was a reality in an effort to determine extent of the structure of deep production. Because the old shallow pools have been under lease for a decade, gaining a foothold there is impossible. The opportunity for most of the major companies is by gaining outlying acreage. Deeper beds of Ordovician age are also under study, particularly by men from Oklahoma, who have been given the description of "bow and arrow boys."

HISTORICAL

and Somewhat Chronological

By GRADY TRIPLETT
Staff Writer

IT WAS November 10, 1919, that a bevy of scouts headed back to Wichita Falls under all the speed rough and muddy roads would permit to report that K. M. A. Oil Company had completed Munger 1 for 300 barrels initial.

Immediately the new field took the edge off Burkburnett. Lease prices rose to $10,000 an acre, for oil was $3 a barrel and destined to hit $3.50 a barrel and local refining plants were paying the customary 25 cents bonus. Messrs. Kemp, Munger and Allen, who owned substantial acreage in the area, had formed the oil company, whose stock soon outdistanced all others on the several exchanges that were set up to handle the shift in corporate ownership of the hundreds of concerns, which drilled at Burkburnett. Over a stretch a standing bid of $2,900 for each share of stock in K. M. A. Oil Company was the talk of the board rooms. A few shares changed hands at higher figures in private deals.

K. M. A. had started its boom at the peak measured by Burkburnett. Then came the headaches. Instead of 300 barrel wells, producers were completed for around 20 barrels and all that did not add up to a favorable total against such lease costs plus drilling costs of similar proportions. The K. M. A. boom figuratively

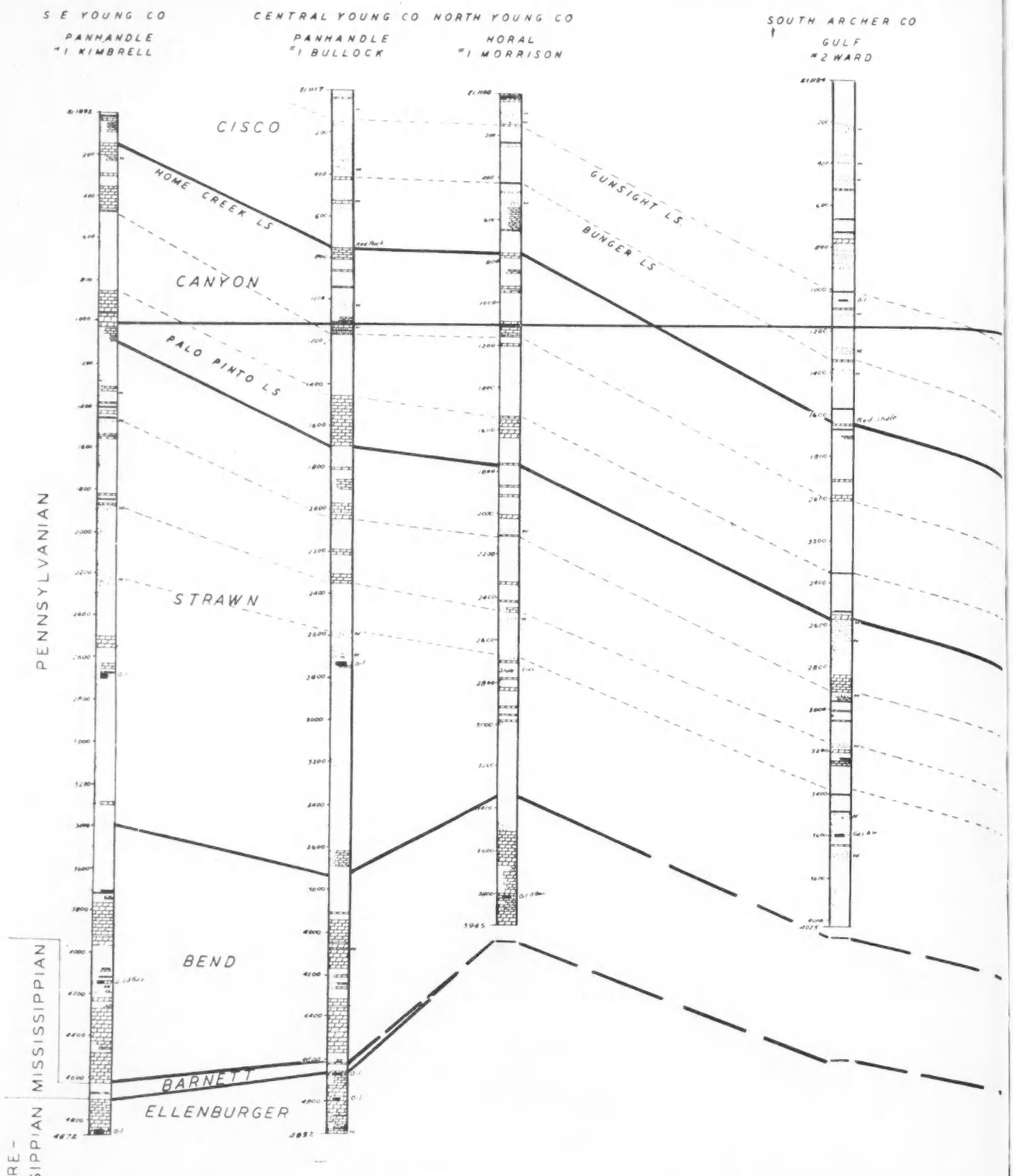
STRUCTURE: A plunging southeast anticline, influenced by the Bend Flexure, a major structural feature, which extends from the Llano-Burnett uplift northward into Wichita County, where it deviates to the northwest in joining the Electra Arch, is the major east to west structural feature of the area. These major structures are responsible for the numerous structures in which was accumulated the oil for the several scores of smaller oil fields of North Texas.

SOURCE: Either the Strawn series or the Bend series of Pennsylvania age is the source of oil. Most geologists now credit the production to the Strawn, second oldest of the Pennsylvania rocks. From the bottom up these are: Bend, Strawn, Canyon, Cisco. Sands in the Cisco are responsible for most of the oil produced in North Texas.

PAY: Saturation may be found at five or six places within 300 feet of lime, sand and shale. Production in the new development of the K. M. A. deep zone is from a true sand, which has around 20 percent porosity. Its thickness varies from 30 to 45 feet. The older part of the deep development is a combination of lime and sand. Porosity varies from 8 to 15 percent Streaks of shale are present in the lime area. Wells here have as much as 100 feet of lime and sand broken by shale from which oil is being taken.

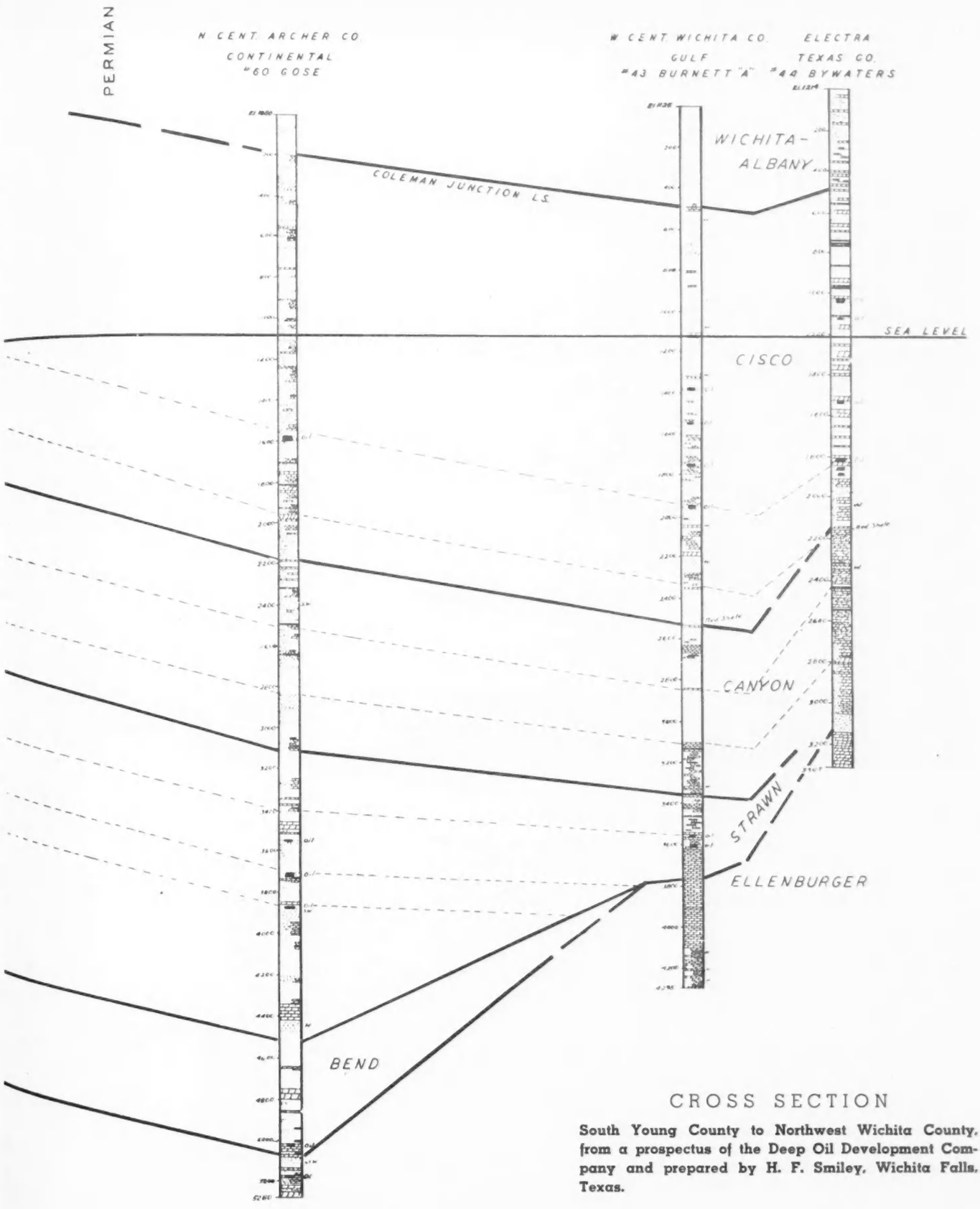
WATER: A defined water table exists in the older part of the field, although all wells are not making water. A study of six logs placed the water table 66 feet below the top of the producing section. No water has been encountered in the wells producing from the sand.

ABOVE AND BELOW: Possibility of production at around 2900 feet was indicated in a test drilled in 1931 by Mid-Continent Holding Corporation, Burnside 1, a twin to the Clyde-Texan Oilfields Company, shown as the northwest deep well on the map. The hole was not handled properly and was abandoned when partly filled with oil at 3123 feet. Some oil had shown at 2960-78 feet. Afterward this well pumped small amounts by windmill power. Below the Pennsylvania is the Ellenburger lime, identical with the Arbuckle lime (Ordovician) of Oklahoma. Mississippi beds are absent over most of the North Texas area. The Ellenburger is under study as a future source of oil, especially in Archer and Young counties, where Viola lime production has been commercial.



This cross section, which follows the Bend Flexure, the major north-south structure of North Texas, shows the Strawn series of Pennsylvania age to be consistent in oil and gas bearing limes and sands in Young County, Archer County and Wichita County.

Two of the wells, one in Young County and one in Archer County, had oil showing in the Ellenburger lime, which checks with the Arbuckle lime of Ordovician age in Oklahoma.

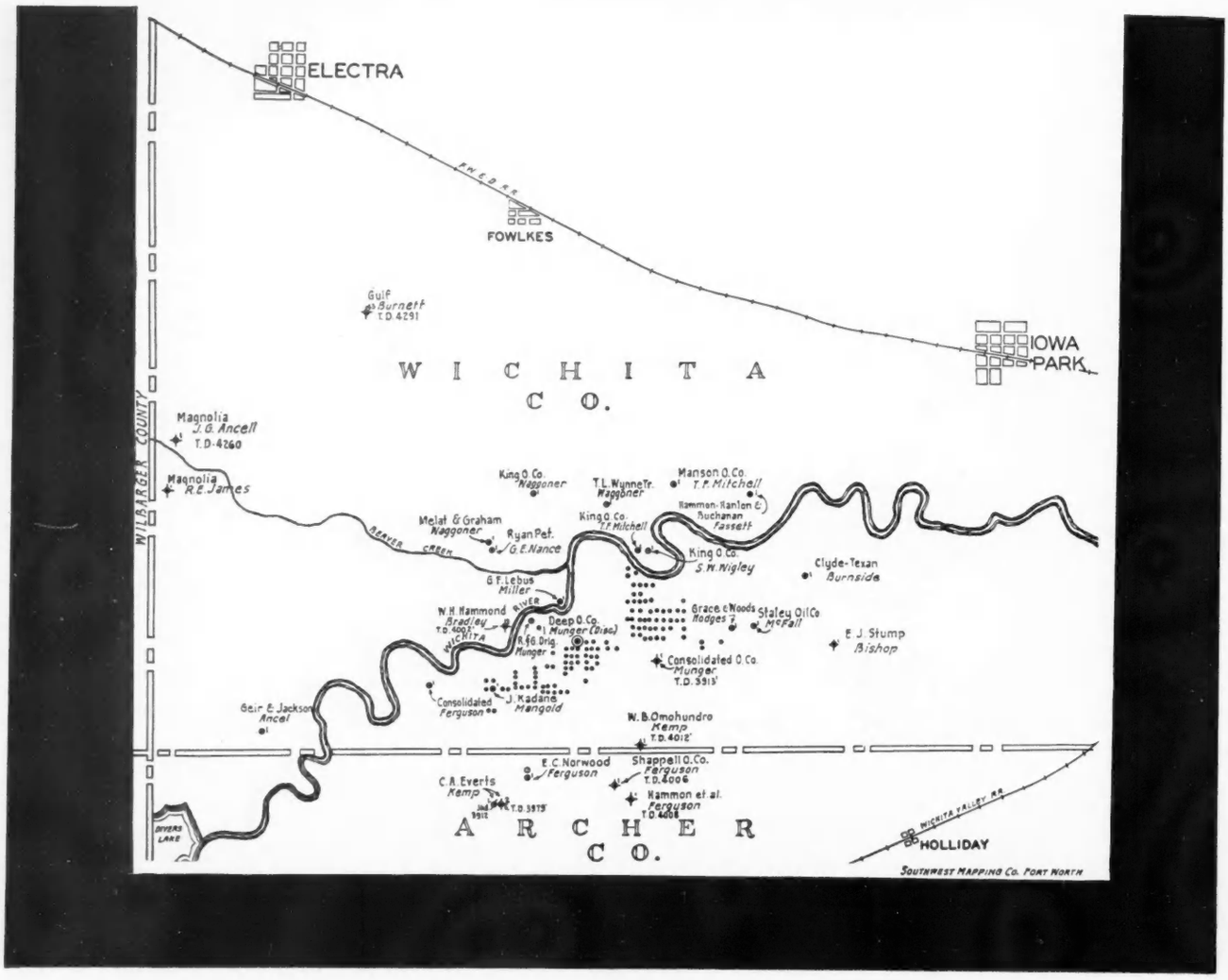


CROSS SECTION

South Young County to Northwest Wichita County, from a prospectus of the Deep Oil Development Company and prepared by H. F. Smiley, Wichita Falls, Texas.

A significant well on this page is Gulf Oil Corporation's Burnett 43-A, which had oil in members of the Strawn series when drilled in 1929. This well is northwest of the K. M. A. deep zone area. The drilling play is being carried in the direction of this well.

Area



HOW BIG?—Within the seven outpost wells, present limits of deep production at K. M. A., are 30,000 acres. This boundary, however, does not answer the question of size. There are dry holes within these limits as well as dry holes nearby and these do not define the area, since most of them were drilled without benefit of coring, acid treatment or electrical logging.

More significant than the dry holes is the well drilled by Gulf Oil Corporation, Burnett 43-A, midway between the field and Electra. Shows of oil in the Strawn series were recorded at 3570-75 and 3600-12. Two wells to the south in Archer County also had showings in the Strawn series. These records give encouragement to a field much larger than now defined.

HOW MANY WELLS?—If drilling continues on the basis of one well to 10 acres, there will be 3000 wells within present limits. A few wells are drilling on sites of less than 10 acres. Producers, however, favor 20-acre spacing and the Texas Railroad Commission has issued an order to encourage that density, but drilling continues on the 10 acre basis.

HOW MUCH OIL?—Estimates of recovery vary from 6500 to 15,000 barrels per acre. Some of the sand wells no doubt will give the higher yield Where lime predominates recovery may not be as much as 6500 barrels per acre. A conservative estimate of recovery is 7500 barrels per acre.

ITS LIFE?—Proration now holds output down to 58 barrels per day. The allowable can be made easily by pumping wells, while flowing wells must be choked, which gives opportunity for taking full advantage of gas pressure, to hold within the allowable. The field is now producing 200 feet down structure.

bloomed one morning and died that evening.

What it finally amounted to was the lease prices got down to proper figures, drilling costs went to low levels and the drilling in the K. M. A. area continued on a conservative basis with the result that a dozen small pools were developed in the next 10 years. Sands of the Cisco series of the Pennsylvanian age were found productive as shallow as 400 feet and as deep as 1700 feet. It became a wide belt of shallow strippers, where a well could be drilled with a machine and put on the pump for $2,000. As such K. M. A. became a profitable spot of operation.

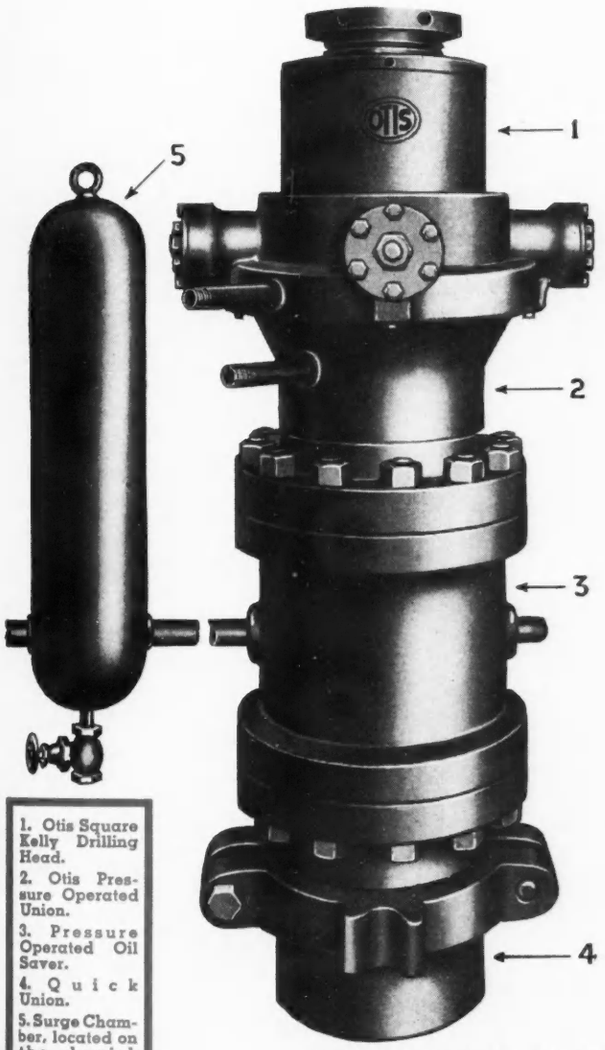
First Deep Well

The next highlight in the history of K. M. A. came with the completion of its first deep well. But formation of the Deep Oil Development Company must be mentioned in or-

OTIS

Square Kelly Drilling Head and Pressure-Control Drilling Equipment is a Trouble and Money Saver

in K-M-A



1. Otis Square Kelly Drilling Head.
2. Otis Pressure Operated Union.
3. Pressure Operated Oil Saver.
4. Quick Union.
5. Surge Chamber, located on the derrick floor.

7 PATENTS AND OTHER PATENTS PEND.

This Otis Equipment for Pressure-Control Drilling now has the excellent reputation among the K-M-A Operators that it has consistently enjoyed in other important Mid-Continent fields, the Gulf Coast and California fields. It is filling a three-fold need in K-M-A operations, to real advantage and profit to users. . . . Drilling in or Cleaning Out Under Pressure; Blowout Prevention; and Carrying Excess Pressure on the Mud Column. This patented Otis hook-up permits use of the conventional square Kelly joint with either outside coupled (tool joint) or flush joint drill pipe. It allows full free travel of the Kelly, using your regular square Kelly joint and rotary table drive bushings. It has no friction driving elements to slip and mar your drill pipe, no telescopic bushings to raise and lower with every few feet of hole made. Drilling proceeds almost exactly the same as though it were not being done under pressure control.

Full details gladly furnished upon inquiry.

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K-M-A District Representative:
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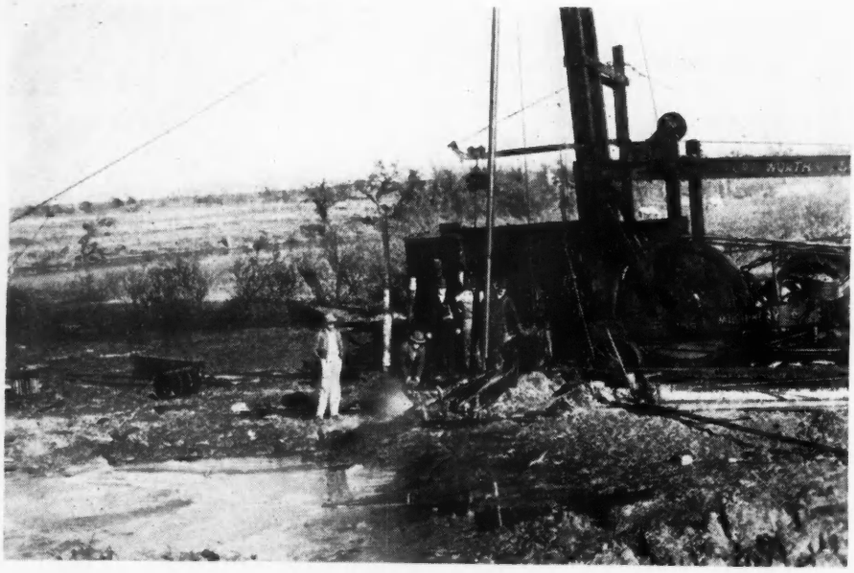
OTIS "Don't Kill Your Well" Call OTIS

Drilling Practices



CABLE-ROTARY-CABLE: Common practice calls for machine drilling until the surface string has been set. Meanwhile pits are dug. Then a 129-foot derrick is erected and the 9-inch hole is carried down by rotary to the 3650-foot level, where casing is cemented. Then a machine is moved in to drill the 300-foot section in which saturation is found.

POWER: Diesel engine power predominates, although a few steam rigs are running. Water is ample from the irrigation project but this requires treatment for boiler use.

TIME: Wells now are being drilled in 20 days. Contractors expect to reduce the time as drillers become accustomed to the area.

COST: Flowing wells are turned into the tanks for $25,000. For pumping, the cost is higher and is determined by the type of pumping unit. The cost is divided into $12,000 for the contractor, who provides slush pits and the hole. Pipe, connections, flow lines, separators and tankage call for $13,000.

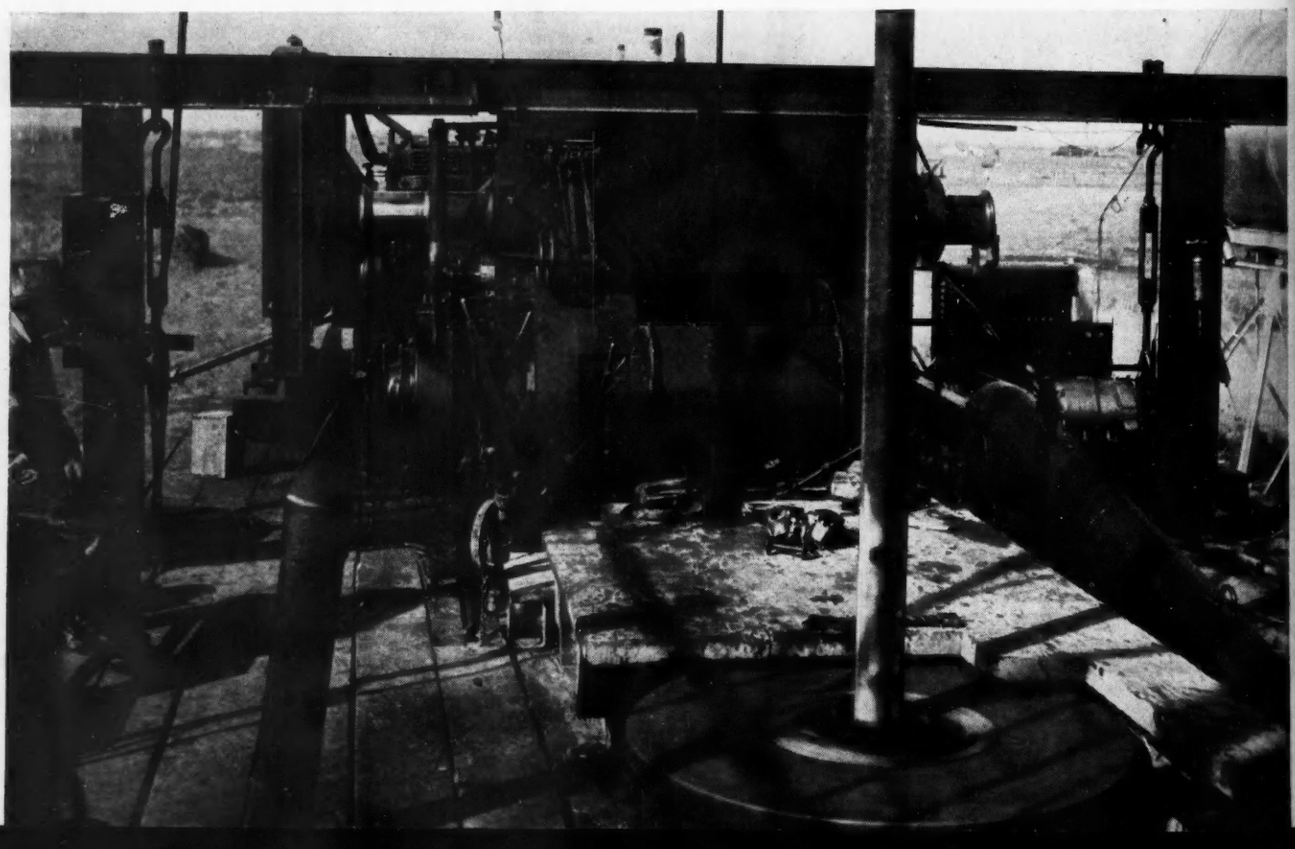
BITS: Most holes are drilled the full distance of the rotary with hard formation bits. These are not required for all formations but so much of the distance is hard digging that the practice is not to change types of bits.

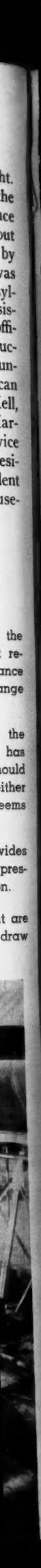
CORING: Outpost wells are drawing most of the coring, which seldom starts until 7-inch casing has been set. Producers admit that more coring should be done in the proven part of the field, since either lime or sand may be found saturated. Coring seems certain to find wider use.

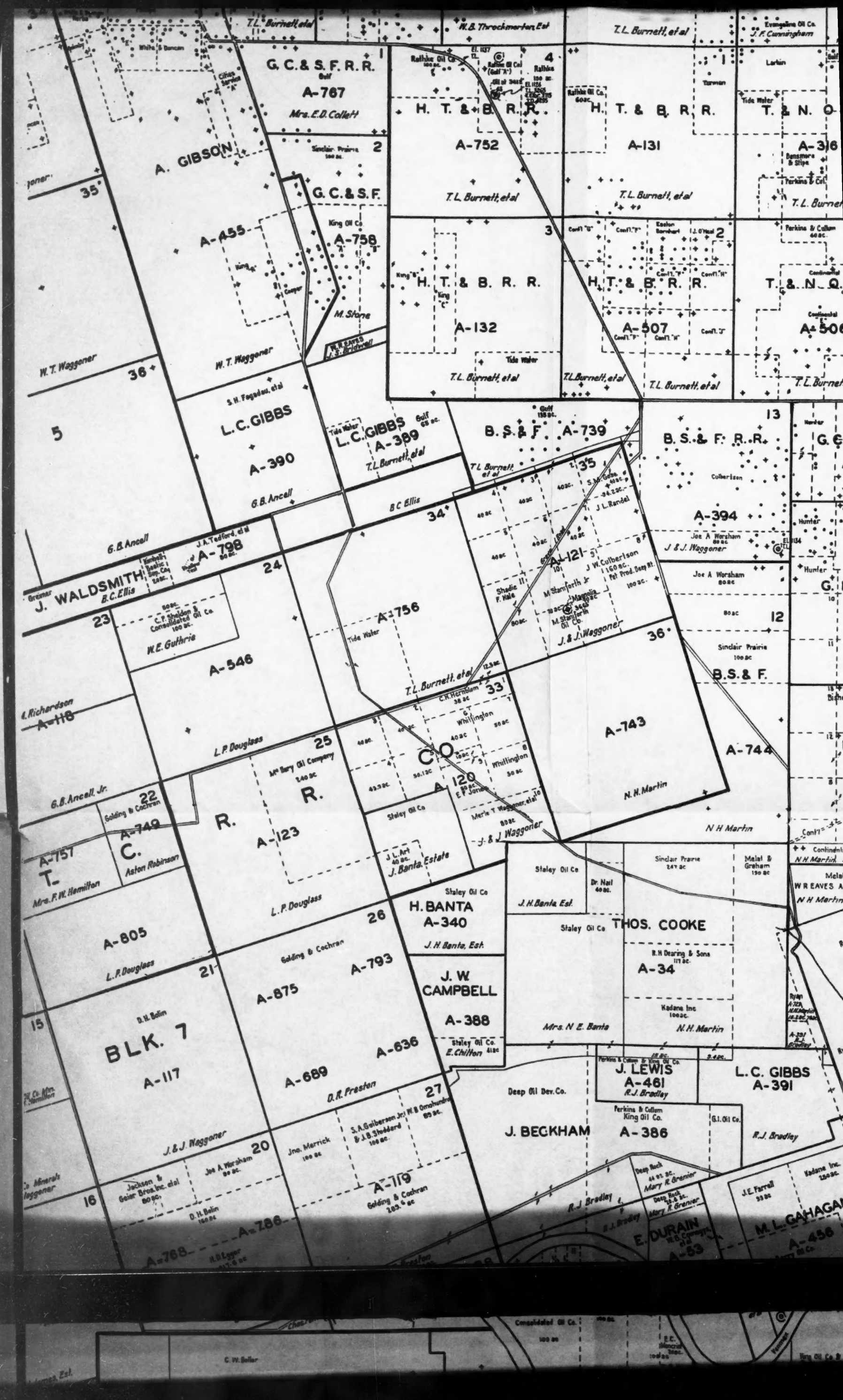
MUD: All mud is commercial, since the soil provides no satisfactory material. Since there are no gas pressures, it is held to around 9.5 pounds per gallon.

COMPLETION: Both shooting and acid treatment are used in completing wells. The sandy lime wells draw both. Sand wells flow natural.

der to keep the record straight. While all North Texas was in the settled production stage, confidence in deep production brought about formation of a concern, backed by local capital, whose one mission was to test the deeper beds of Pennsylvanian age as well as beds of Mississippian and Ordovician ages. Its officials and directors included the successful oil producers of several counties. A sample of the personnel can be had from the officials: Frank Kell, chairman of the board; N. H. Martin, president; J. J. Perkins, vice president; J. S. Bridwell, vice president; Harry Hines, vice president and general manager; Sam House-






G. C. & S. F. R. R.
A-767
Mrs. E.D. Colleff
A. GIBSON
G. C. & S. F.
A-455
A-758
M. Stone
W. T. Waggoner
H. T. & B. R. R.
A-752
T. L. Burnett, et al
H. T. & B. R. R.
A-131
T. & N. O.
A-316
H. T. & B. R. R.
A-132
H. T. & B. R. R.
A-507
T. & N. O.
A-506
L. C. GIBBS
A-390
L. C. GIBBS
A-389
B. S. & F.
A-739
B. S. & F. R. R.
A-394
J. WALDSMITH
A-798
A-1121
A-1756
A-546
A-743
A-744
A-123
A-805
A-749
A-757
A-120
H. BANTA
A-340
J. W. CAMPBELL
A-388
THOS. COOKE
A-34
J. LEWIS
A-461
L. C. GIBBS
A-391
J. BECKHAM
A-386
BLK. 7
A-117
A-875
A-793
A-689
A-636
A-119
A-786
A-768
E. DURAIN
A-53
M. L. GAHAGAN
A-456
T. L. Burnett, et al
B. C. Ellis
G. B. Ancell
L. P. Douglass
J. & J. Waggoner
R. J. Bradley
Staley Oil Co
Golding & Cochran
D. H. Bolin
D. R. Preston
Deep Oil Dev. Co.
Perkins & Cullum
King Oil Co.
Sinclair Prairie
B. S. & F.
N. H. Martin
Mrs. N. E. Banta
J. H. Banta Est.
J. H. Banta, Est.
J. Banta, Estate
W. T. Waggoner
W. R. EAVES
J. S. Bridwell
L. C. Gibbs
Gulf
Tide Water
Ralphs Oil Co.
Evangeline Oil Co.
J. F. Cunningham
Larkin
Tarman
Bensmore & Stipe
Perkins & Cullom
Continental
Conoco
Eason Bernhart
J. O'Neal
Conf. "B"
Conf. "F"
Conf. "H"
Conf. "J"
Conf. "K"
Conf. "M"
Kadane Inc
Ryan
Colbertson
Joe A Worsham
J & J Waggoner
Hunter
Shadix & Vale
M. Stanforth Jr
J. W. Culbertson
Pet Prod. Deep Rt.
M. Stanforth Oil Co.
Magnolia
Whittington
C. P. Sheldon & Consolidated Oil Co.
W. E. Guthrie
A. Richardson
L. P. Douglass
Mrs. Mary Oil Company
E. P. Jones
Merle T. Waggoner, et al
Golding & Cochran
Mrs. F. W. Hamilton
Aston Robinson
Dr. Nail
Malal & Graham
R. H Dearing & Sons
Kadane Inc
D. H. Bolin
Jackson & Geier Bros. Inc. et al
Joe A. Worsham
Jno. Merrick
S. A. Colberson Jr. & J. B. Stoddard
W. B. Omohundro
H. D. Egger
C. W. Beller
Consolidated Oil Co.
E. C. Mencrief
Deep Rock
Mary R. Grenier
J. E. Farrell
Kadane Inc.
G. I. Oil Co.
R. J. Bradley
Staley Oil Co.
E. Chilton
Golding & Cochran
Sinclair Prairie
Malal & Graham
Dr. Nail
J. H. Banta Est.
Mrs. N. E. Banta
N. H. Martin
Perkins & Cullom
King Oil Co.
J. LEWIS
A-461
L. C. GIBBS
A-391
J. BECKHAM
A-386
R. J. Bradley
Deep Rock
Mary R. Grenier
J. E. Farrell
Kadane Inc.
E. DURAIN
M. L. GAHAGAN
A-456
A-53
Consolidated Oil Co.
C. W. Beller
E. C. Mencrief
King Oil Co.
Vermont
Tide Water
Gulf
Ralphs Oil Co.
Evangeline Oil Co.
J. F. Cunningham
Larkin
Tarman
Bensmore & Stipe
Perkins & Cullom
Continental
Conoco
Eason Bernhart
J. O'Neal
Kadane Inc
Ryan
Colbertson
Joe A Worsham
J & J Waggoner
Hunter
Shadix & Vale
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J. W. Culbertson
Pet Prod. Deep Rt.
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Dr. Nail
Malal & Graham
R. H Dearing & Sons
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Jackson & Geier Bros. Inc. et al
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Consolidated Oil Co.
E. C. Mencrief
Deep Rock
Mary R. Grenier
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E. Chilton
Golding & Cochran
Sinclair Prairie
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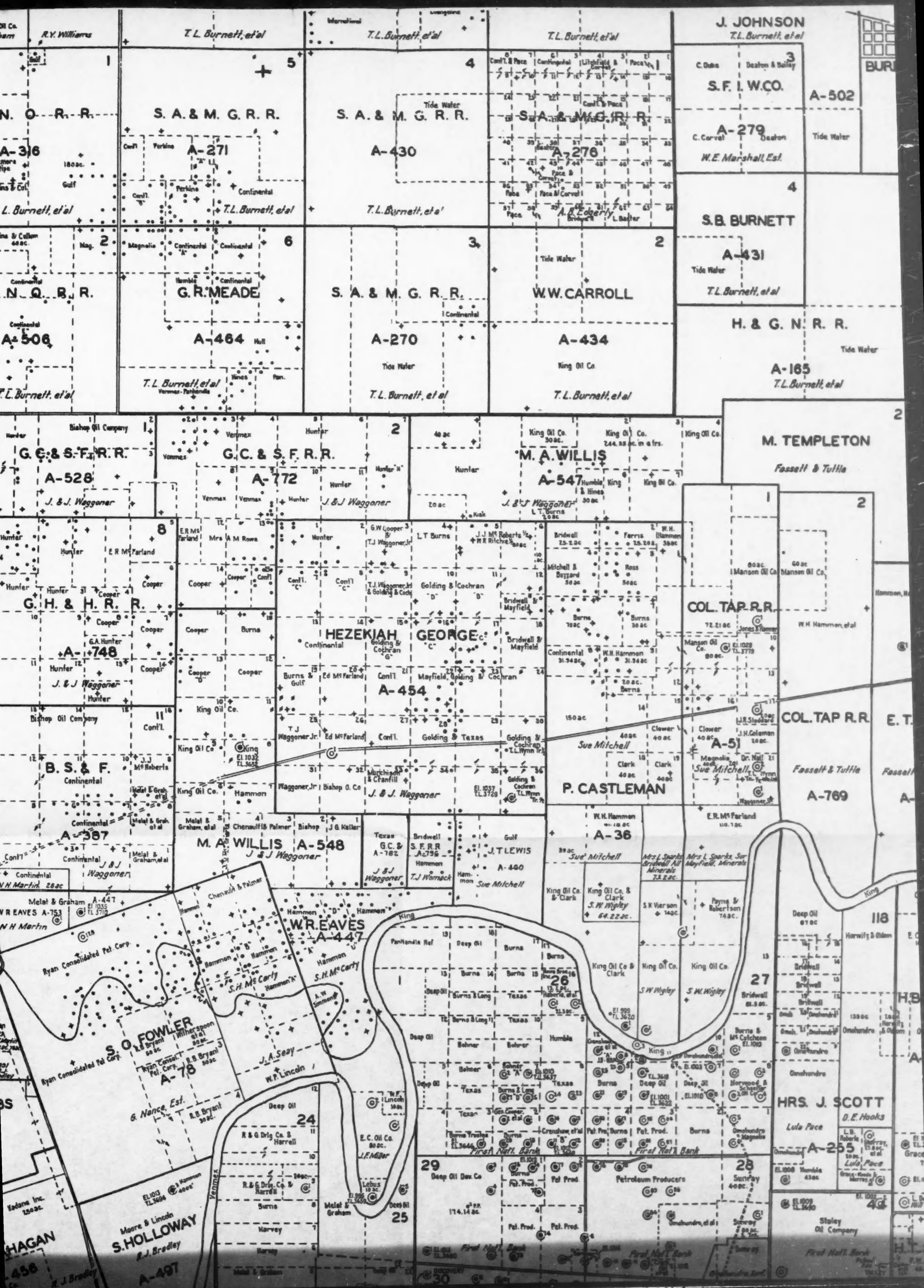
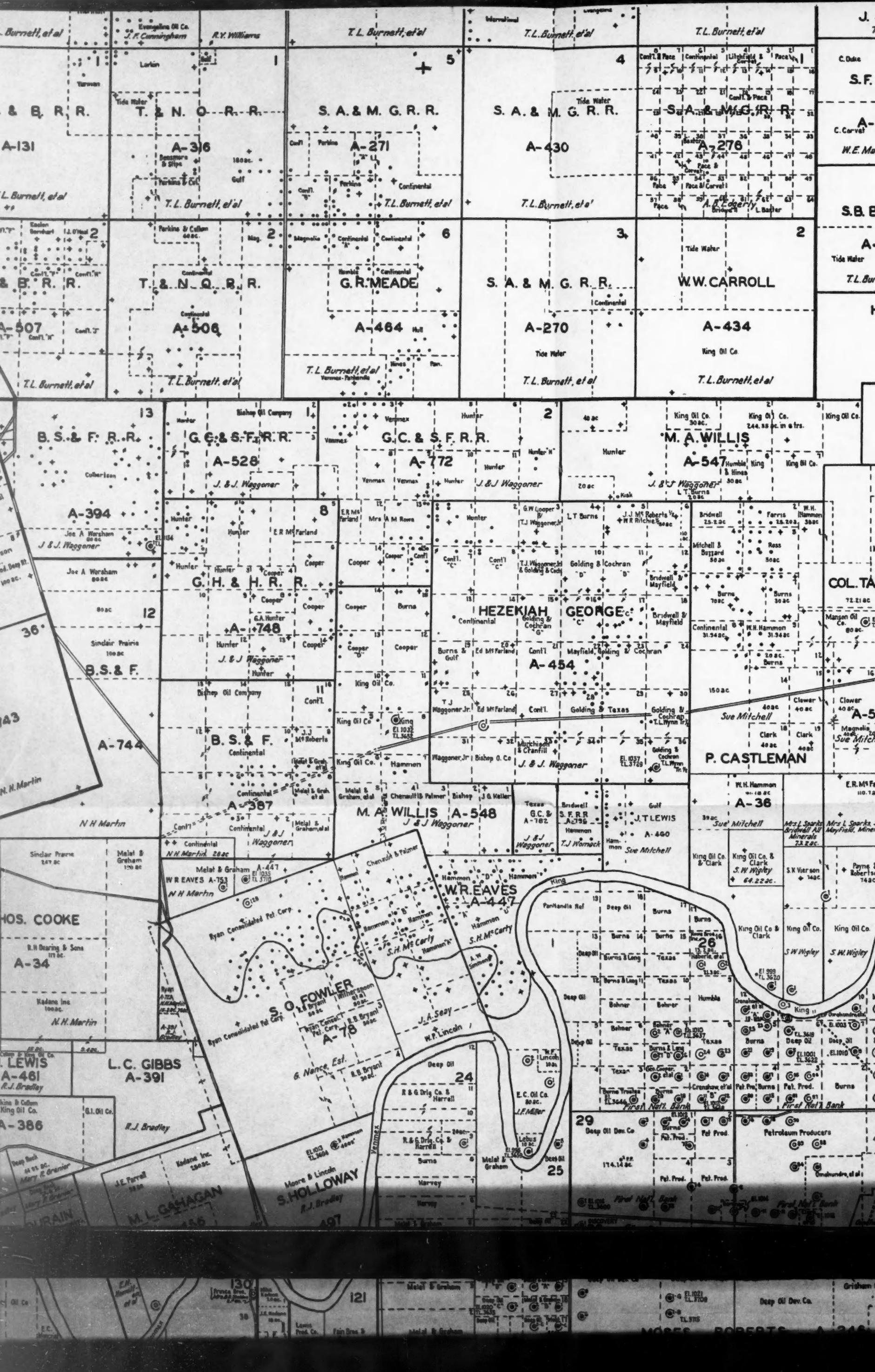
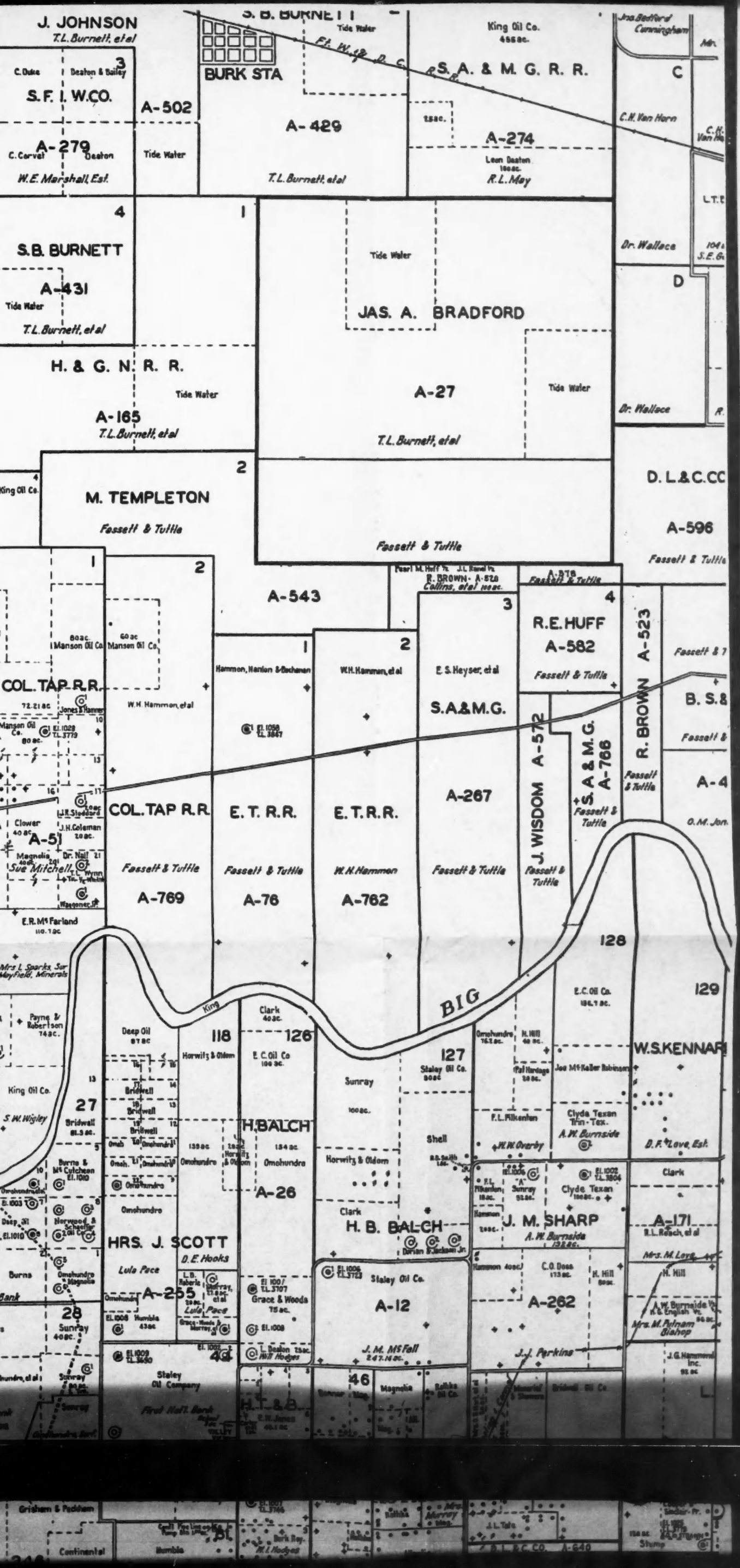
Dr. Nail
J. H. Banta Est.
Mrs. N. E. Banta
N. H. Martin
Perkins & Cullom
King Oil Co.
J. LEWIS
A-461
L. C. GIBBS
A-391
J. BECKHAM
A-386
R. J. Bradley
Deep Rock
Mary R. Grenier
J. E. Farrell
Kadane Inc.
E. DURAIN
M. L. GAHAGAN
A-456
A-53
Consolidated Oil Co.
C. W. Beller
E. C. Mencrief
King Oil Co.
Vermont


J. JOHNSON
T.L. Burnett, et al
S.F. I. W.CO.
A-502
A-279
W.E. Marshall, Est.
S.B. BURNETT
A-431
T.L. Burnett, et al
H. & G. N. R. R.
A-165
T.L. Burnett, et al
N. O. R. R.
A-316
S. A. & M. G. R. R.
A-271
A-430
A-276
N. O. R. R.
A-506
G. R. MEADE
A-464
S. A. & M. G. R. R.
A-270
W. W. CARROLL
A-434
G. C. & S. F. R. R.
A-528
J. & J. Waggoner
G. C. & S. F. R. R.
A-772
J. & J. Waggoner
M. A. WILLIS
A-547
M. TEMPLETON
Fassett & Tuttle
G. H. & H. R. R.
A-748
J. & J. Waggoner
HEZEKIAH GEORGE
A-454
COL. TAP R.R.
B. S. & F.
A-387
M. A. WILLIS
A-548
J. & J. Waggoner
P. CASTLEMAN
A-51
A-36
Sue Mitchell
A-769
Fassett & Tuttle
J. T. LEWIS
A-440
Sue Mitchell
W. R. EAVES
A-447
S. O. FOWLER
A-78
Ryan Consolidated Pet. Corp.
G. Nance, Est.
J. A. Seay
W. P. Lincoln
S. H. McCarty
A. W. Simmons
Moore & Lincoln
S. HOLLOWAY
R. J. Bradley
A-497
HRS. J. SCOTT
D. E. Hooks
Lula Pace
A-255
Staley Oil Company
First Nat'l Bank
Petroleum Producers
Deep Oil Dev. Co.
Sunray
Omohundro
Omohundro & Magnolia
Burns & McCutcheon
Norwood & Schaeffer
Texas
Burns & Long
Deep Oil
Bridwell
Harwitz & Oldham
Mansion Oil Co.
Jones & Hammon
W. H. Hammon, et al
Sue Mitchell
Mrs. L. Sparks, Sur
Bridwell Oil Minerals
Mrs. L. Sparks, Sur
Mayfield, Minerals
S. K. Pierson
Payne & Robertson
King Oil Co. & Clark
S. W. Wigley
Ryan Consolidated Pet. Corp.
Vennex
Hammon
Chenault & Palmer
Melat & Graham
Texas G.C. & S.F.R.R. A-782
Bridwell S.F.R.R. A-796
J. & J. Waggoner
T. J. Womack
Hammon
Sue Mitchell
Kadane Inc.
R. J. Bradley
Lewis Prod. Co.
Fain Bros. & Anderson
Gresham & Peckham


T. L. Burnett, et al
Evangeline Oil Co.
J. F. Cunningham
R. Y. Williams
T. L. Burnett, et al
International
T. L. Burnett, et al
T. L. Burnett, et al
S. A. & M. G. R. R.
A-131
T. & N. O. R. R.
A-316
S. A. & M. G. R. R.
A-271
S. A. & M. G. R. R.
A-430
S. A. & M. G. R. R.
A-276
T. L. Burnett, et al
T. L. Burnett, et al
T. L. Burnett, et al
T. L. Burnett, et al
A. B. Edgerly
T. & N. O. R. R.
A-506
G. R. MEADE
A-464
S. A. & M. G. R. R.
A-270
W. W. CARROLL
A-434
T. L. Burnett, et al
T. L. Burnett, et al
T. L. Burnett, et al
T. L. Burnett, et al
King Oil Co.
B. S. & F. R. R.
A-394
G. C. & S. F. R. R.
A-528
J. & J. Waggoner
G. C. & S. F. R. R.
A-772
J. & J. Waggoner
M. A. WILLIS
A-547
J. & J. Waggoner
G. H. & H. R. R.
A-748
J. & J. Waggoner
HEZEKIAH GEORGE
A-454
P. CASTLEMAN
A-36
B. S. & F.
A-744
B. S. & F.
A-387
M. A. WILLIS
A-548
J. & J. Waggoner
J. T. LEWIS
A-460
W. R. EAVES
A-447
THOS. COOKE
A-34
S. O. FOWLER
A-78
L. C. GIBBS
A-391
M. L. GAHAGAN
S. HOLLOWAY
R. J. Bradley
Deep Oil Dev. Co.
Petroleum Producers
Sinclair Prairie
Bishop Oil Company
Continental
Gulf
Texas
Humble
Burns
Cooper
Hunter
Hammon
Venmex
Harrell
Harvey
Lebus
Bridwell
Mayfield
Golding & Cochran
Mitchell & Bozzard
Ross
Sue Mitchell
Clark
Clower
Magnolia
Manson Oil Co.
Ryan Consolidated Pet. Corp.
S. H. McCarty
J. A. Seay
W. P. Lincoln
E. C. Oil Co.
J. F. Miller
First Nat'l. Bank
Deep Oil
Pan Handle Ref
King
King Oil Co. & Clark
S. W. Wigley
Kadane Inc.
N. H. Martin
R. H. Dearing & Sons
Melat & Graham
W. R. EAVES A-753
Sinclair Prairie
Joe A. Worsham
J. E. Farrell
Moore & Lincoln



Supplement to

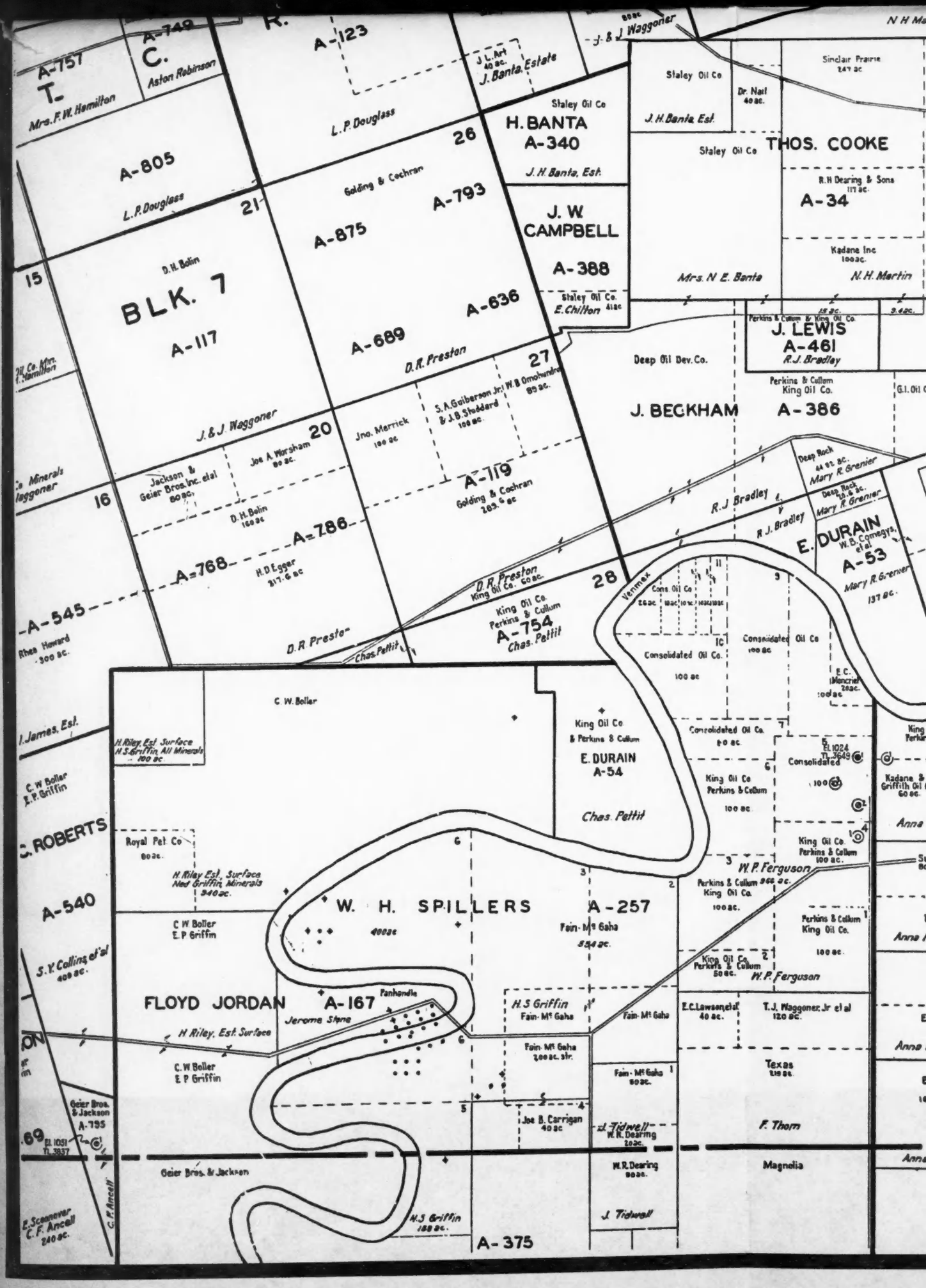
THE OIL WEEKLY

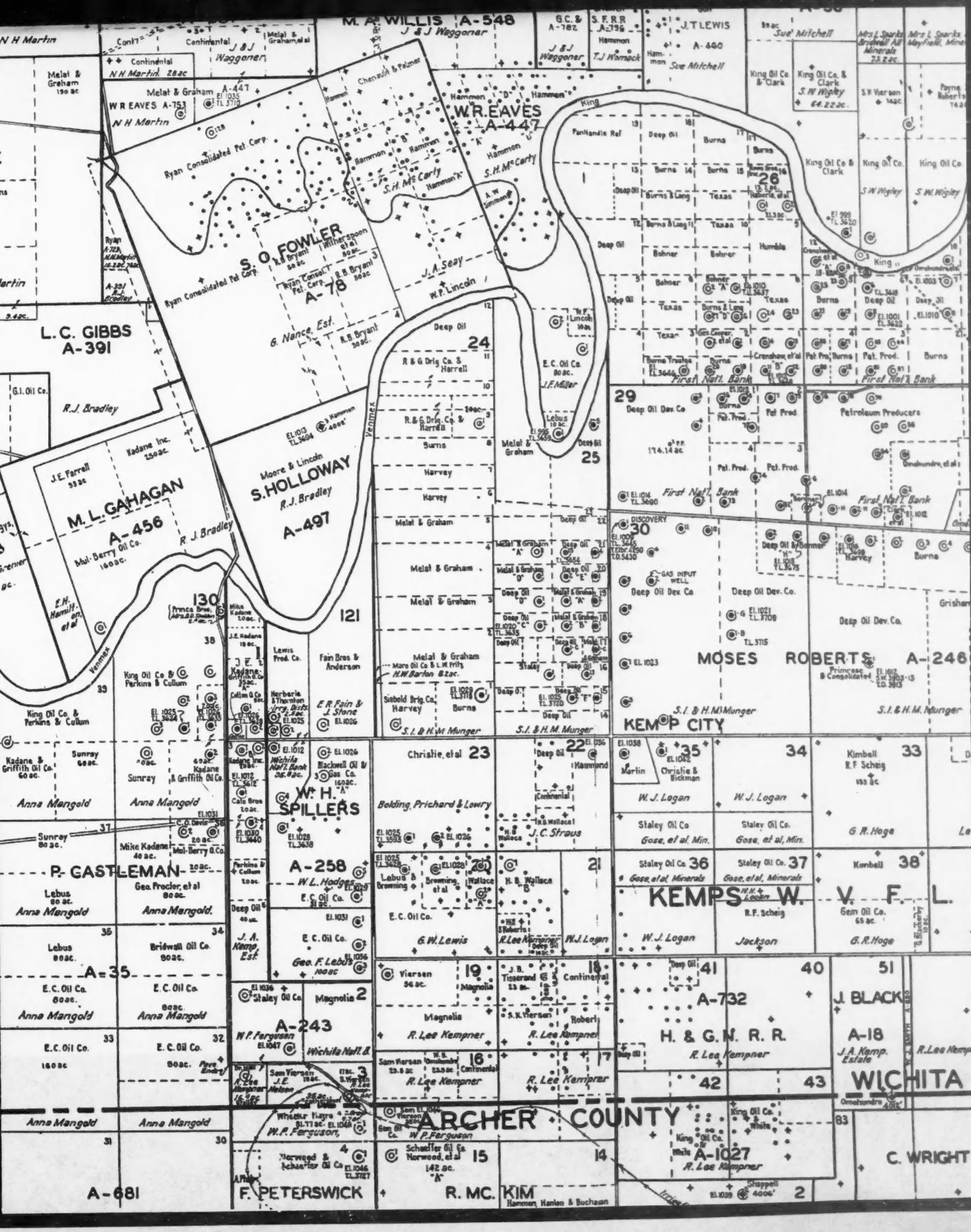
January 17, 1938

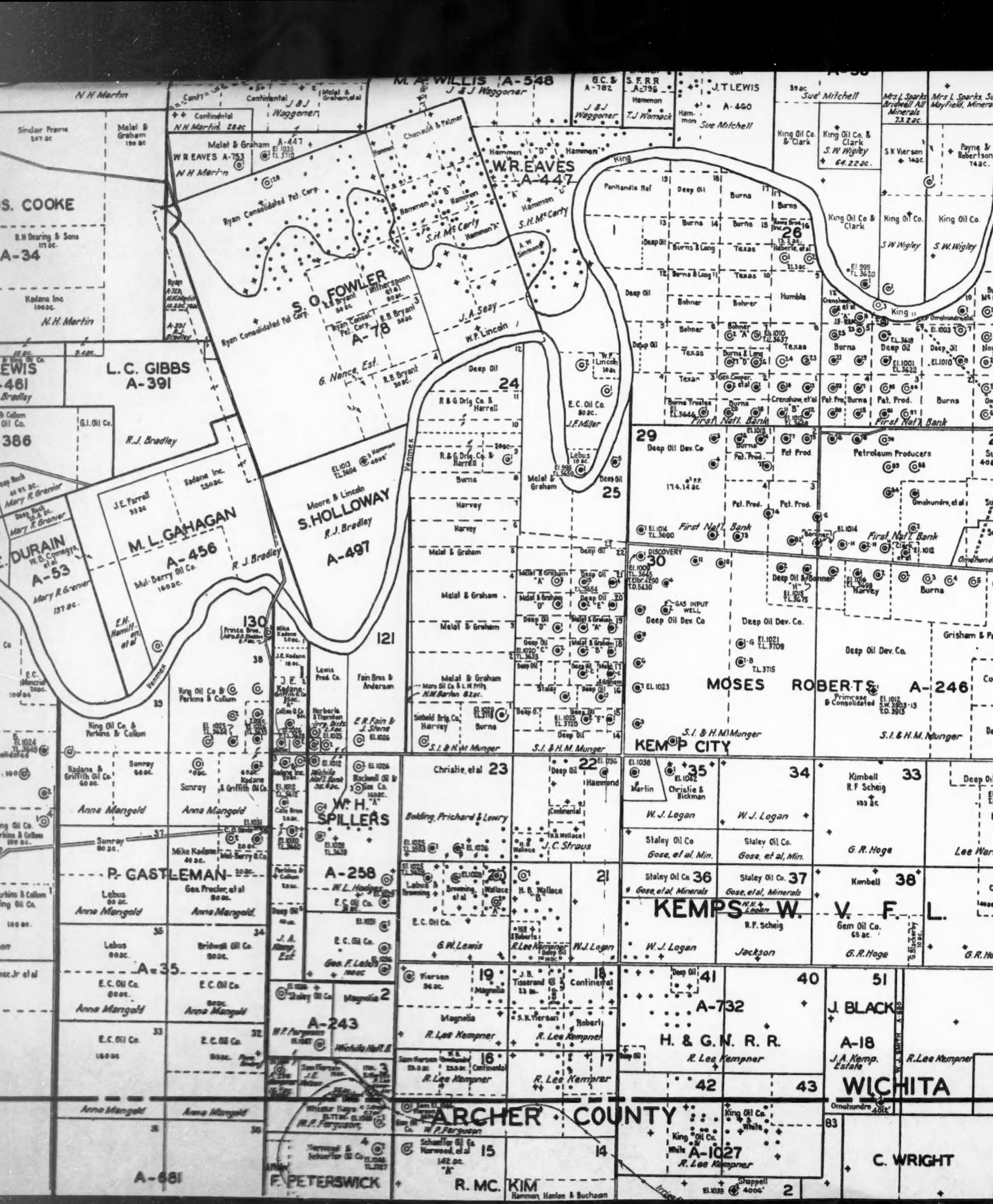
Deep Zone K M A Field

Sufficient elevations and depths to the top of the lime have been added to give an indication of the size of the structure on that marker. This lime

just above the 300 feet of


A-757
T-
Mrs. F. W. Hamilton
A-749
C.
Aston Robinson
R.
A-123
J. L. Art
40 ac.
J. Banta, Estate
J. & J. Waggoner
Staley Oil Co
J. H. Banta Est.
Dr. Nail
40 ac.
Sinclair Prairie
147 ac
THOS. COOKE
R. H Dearing & Sons
117 ac.
A-34
Kadane Inc
100 ac.
N. H. Martin
Mrs. N E. Banta
A-805
L. P. Douglass
L. P. Douglass
26
H. BANTA
A-340
J. H. Banta, Est.
Golding & Cochran
A-793
A-875
21
J. W.
CAMPBELL
A-388
Staley Oil Co.
E. Chilton 41ac
15
D. H. Belin
BLK. 7
A-117
A-689
A-636
D. R. Preston
27
Deep Oil Dev. Co.
Perkins & Cullum
King Oil Co.
J. LEWIS
A-461
R. J. Bradley
J. BECKHAM
A-386
J. & J. Waggoner
Jno. Merrick
100 ac
S. A. Guiberson Jr. & J. B. Shoddard
100 ac.
W. B Omohundro
80 ac.
20
Jackson & Geier Bros. Inc. et al
80 ac.
Joe A. Worsham
80 ac.
D. H. Belin
160 ac
A-719
Golding & Cochran
283.6 ac
16
A-786
A-768
H. D. Egger
317.6 ac
Deep Rock
44.82 ac.
Mary R. Grenier
R. J. Bradley
E. DURAIN
W. B. Comegys, et al
A-53
Mary R. Grenier
137 ac.
A-545
Rhea Howard
300 ac.
D. R. Preston
King Oil Co. 60 ac.
28
King Oil Co.
Perkins & Cullum
A-754
Chas. Pettit
Venmex
Cons. Oil Co
Consolidated Oil Co
100 ac
E. C. Moncrief
Consolidated Oil Co.
Consolidated Oil Co
100 ac
King Oil Co
Perkins & Cullum
100 ac
C. W. Boller
King Oil Co
& Perkins & Cullum
E. DURAIN
A-54
Chas. Pettit
H. Riley Est. Surface
H. S. Griffin, All Minerals
100 ac
C. W. Boller
E. P. Griffin
C. ROBERTS
A-540
Royal Pet. Co
80 ac.
H. Riley Est., Surface
Ned Griffin, Minerals
340 ac.
W. H. SPILLERS
A-257
400 ac
Fain-Mt Gaha
554 ac.
C. W. Boller
E. P. Griffin
S. V. Collins et al
400 ac.
FLOYD JORDAN
A-167
Panhandle
Jerome Stone
H. Riley, Est. Surface
H. S Griffin
Fain-Mt Gaha
Fain-Mt Gaha
Fain-Mt Gaha
300 ac. plr.
C. W. Boller
E. P Griffin
Fain-Mt Gaha
80 ac.
Joe B. Carrigan
40 ac
J. Tidwell
W. R. Dearing
202 ac.
Geier Bros. & Jackson
A-795
El. 1031
TL. 3837
Geier Bros. & Jackson
W. R. Dearing
80 ac.
Magnolia
E. Scanlever
C. F. Ancell
240 ac.
C. F. Ancell
H. S Griffin
188 ac.
A-375
J. Tidwell
F. Thorn
E. C. Lawson et al
40 ac.
T. J. Waggoner Jr et al
120 ac.
Texas
E. P. Ferguson
Perkins & Cullum
King Oil Co.
100 ac.
W. P. Ferguson
Perkins & Cullum
King Oil Co.
100 ac.
W. P. Ferguson
Perkins & Cullum
King Oil Co.
50 ac.
Perkins & Cullum
King Oil Co.
100 ac.
Consolidated
100
El. 1024
TL. 3649
Kadane & Griffith Oil
60 ac.
Anna


M. A. WILLIS A-548
J & J Waggoner
G.C. & A-182
S.F.R.R. A-796
J. T. LEWIS A-460
W. R. EAVES A-447
S. O. FOWLER A-78
L. C. GIBBS A-391
M. L. GAHAGAN A-456
S. HOLLOWAY A-497
KEMP CITY
MOSES ROBERTS A-246
W. H. SPILLERS A-258
P. CASTLEMAN A-35
KEMPS W. V. F. L.
A-732
H. & G. N. R. R.
J. BLACK A-18
WICHITA
ARCHER COUNTY
A-1027
A-681
F. PETERSWICK
R. MC. KIM
C. WRIGHT
Ryan Consolidated Pet Corp.
Continental
Melat & Graham
Hammon
Burns
Deep Oil
Texas
Humble
Behner
Harvey
Lebus
Venmex
King
First Nat'l Bank
Petroleum Producers
Deep Oil Dev. Co.
Kadane Inc.
King Oil Co. & Perkins & Cullum
Sunray
Anna Mangold
Mike Kadane
Mel-Berry Oil Co.
Geo. Procter, et al
Briewall Oil Co.
E.C. Oil Co.
Magnolia
Wichita Nat'l B.
Chrisite, et al
Bolding, Prichard & Lowry
G. W. Lewis
W. J. Logan
Staley Oil Co.
Gose, et al, Min.
Jackson
Kimball
R. F. Scheig
G. R. Hoge
Gem Oil Co.
Sam Viersen
R. Lee Kempner
Schaeffer Oil Co.
Norwood & Schaeffer Oil Co.
Whaley Negro
W. P. Ferguson
Shappell
Prince Bros.
Fain Bros & Anderson
Lewis Prod. Co.
Barbarie & Thornton
Siebold Brig. Co.
S. I. & H. M. Munger
Deep Oil Dev. Co.
Princess & Consolidated
Christie & Bickman
Martin
Tisserand
Continental
Wallace
Browning, et al
Hammond
Deep Oil Dev Co.
GAS INPUT WELL
DISCOVERY
Ryan Consol. Pet. Corp.
Milhenspoon et al
R. B. Bryant
A. W. Simmons
S. H. McCarty
J. A. Seay
W. P. Lincoln
G. Nance, Est.
E. C. Oil Co.
J. F. Miller
R. & G. Drig. Co. & Harrell
Moore & Lincoln
R. J. Bradley
G. I. Oil Co.
J. E. Farrell
E. H. Hamilt... et al
Mel-Berry Oil Co.
Prince Bros. Mrs. B. B. Shelton
J. E. Kadane
Griffith & Co.
Cullen & Co.
Kadane & Griffith Oil Co.
Mike Kadane
Anna Mangold
Sunray
Lebus
Brewing, et al
Wallace
H. B. Wallace
R. Lee Kempner
W. J. Logan
Staley Oil Co.
Gose, et al, Minerals
Kimball
R. F. Scheig
Gem Oil Co.
G. R. Hoge
Jackson
Sam Viersen
J. B. Tisserand
Magnolia
Continental
Roberts
Deep Oil
Burns & Lang
Texas
Behner
Humble
Burns
Deep Oil
Pat. Prod.
Petroleum Producers
Omahoundro, et al
First Nat'l Bank
Deep Oil Dev. Co.
Deep Oil & Behner
Harvey
Burns
Grisher
Princess & Consolidated
S. I. & H. M. Munger
KEMP CITY
Christie & Bickman
Martin
W. J. Logan
Staley Oil Co.
Gose, et al, Min.
Kimball
R. F. Scheig
G. R. Hoge
Staley Oil Co.
Gose, et al, Minerals
Gem Oil Co.
Jackson
Deep Oil
Magnolia
Tisserand
Continental
Roberts
R. Lee Kempner
Sam Viersen
Schaeffer Oil Co.
Norwood & Schaeffer Oil Co.
Whaley Negro
W. P. Ferguson
Shappell
King Oil Co.
White
A-1027
R. Lee Kempner
C. WRIGHT
Hammon, Hanlen & Buchanan


M. A. WILLIS A-548
J & J Waggoner
G.C. & A-782
S.F.R.R. A-796
J. T. LEWIS A-460
Sue Mitchell
W. R. EAVES A-447
S. O. FOWLER
A-78
L. C. GIBBS
A-391
M. L. GAHAGAN
A-456
S. HOLLOWAY
A-497
DURAIN
A-53
W. H. SPILLERS
A-258
P. CASTLEMAN
A-35
A-243
A-681
F. PETERSWICK
R. MC. KIM
Hammon, Hanlon & Buchanan
MOSES ROBERTS A-246
KEMP CITY
KEMPS W. V. F. L.
H. & G. N. R. R.
A-732
J. BLACK
A-18
WICHITA
ARCHER COUNTY
A-1027
C. WRIGHT
Petroleum Producers
Deep Oil Dev. Co.
First Nat'l Bank
King Oil Co. & Clark
Ryan Consolidated Pet. Corp.
Humble
Texas
Burns
Harvey
Melat & Graham
Staley Oil Co.
Gose, et al, Minerals
Jackson
Anne Mangold
Sunray
Lebus
Bridwell Oil Co.
E. C. Oil Co.
Magnolia
Continental
Wichita Falls R. R.
Yeomans
Mo-Kan
Mo-Barry Oil Co.

A Field

Sufficient elevations and depths to the top of the lime have been added to give an indication of the size of the structure on that marker. This lime is the casing point for K. M. A. deep wells and is just above the 300 feet of sands and limes in which saturation is found.

SCALE

Two Inches to the Mile.

Map Prepared by
HEYDRICK MAPPING CO.,
Wichita Falls, Texas

M. A. WILLIS A-548
J & J Waggoner
G.C. & A-782
S.F.R.R. A-796
J. T. LEWIS
A-480
Sue Mitchell
W. R. EAVES A-447
S. O. FOWLER
A-78
L. C. GIBBS
A-391
M. L. GAHAGAN
A-456
S. HOLLOWAY
A-497
DURAIN
A-53
W. H. SPILLERS
A-258
P. CASTLEMAN
A-35
A-243
A-681
F. PETERSWICK
R. MC. KIM
MOSES ROBERTS A-246
KEMP CITY
KEMPS W. V. F. L.
A-732
H. & G. N. R. R.
J. BLACK
A-18
WICHITA
A-1027
C. WRIGHT
ARCHER COUNTY
Ryan Consolidated Pet. Corp.
Continental
Humble
Texas
Burns
Deep Oil
First Nat'l Bank
King Oil Co.
Deep Oil Dev. Co.
Petroleum Producers
Staley Oil Co.
Kimball
Gem Oil Co.
Magnolia
Anne Mangold
Mid-Barry Oil Co.
Kadane Inc.
Sunray
Labus
Briswell Oil Co.
E. C. Oil Co.
Schaeffer Oil Co.
Harwood & Schaeffer Oil Co.
Wichita
Archer

A Field

Sufficient elevations and depths to the top of the lime have been added to give an indication of the size of the structure on that marker. This lime is the casing point for K. M. A. deep wells and is just above the 300 feet of sands and limes in which saturation is found.

SCALE

Two Inches to the Mile.

Map Prepared by
HEYDRICK MAPPING CO.,
Wichita Falls, Texas

Casing Practices

SURFACE STRING: Surface casing is seldom longer than 200 feet, usually less. Length is determined by thickness of water bearing quicksand. Both 10-inch and 12-inch strings are being set and cemented to the surface.

PRODUCING STRING: The producing string is 7-inch O.D., usually landed on a lime above the saturated section, average depth 3640 feet. Absence of gas and little water below the surface string allows setting with 300 sacks of cement.

TUBING: Both flowing and pumping wells are equipped with 2-inch tubing. For flowing this is swung in the hole. Packers are used for pumping wells, which may have either liner or perforated pipe.

holder, treasurer; J. D. Bright, secretary and assistant treasurer.

This paragraph from its early literature states its objective:

"It is the intention of the Deep Oil Development Company to extensively test five counties, namely, Wichita, Clay, North Young, Archer and Wilbarger, for deeper pay horizons and this company offers substantial financial assistance to any responsible parties toward the drilling of deep wells in this area, provided the locations of such tests are desirable."

It was a combination of civic venture, oil promotion and honesty. That it had its share of good fortune is evident from the report that went into the oil field records April 12, 1931, when its Munger 1-A, Kemp's Wichita Valley Farm subdivision, flowed by heads after a 500-quart shot between 3675-3742 feet. It recorded the first deep production for K. M. A. Previously the well had been drilled to 5430 feet in the Ellenburger line and plugged back to 3977 before flowing by heads.

In August of that year it was on the pump and did 109 barrels in 9 hours, when the rods parted. August 15 repairs had been made and it pumped 140 barrels. January 17, 1933, 1800 gallons of acid brought production up to 110 barrels of oil and 25 barrels of water. June 28, 1933 brought another acid load, 5,000 gallons, and an increase in output.

Still No Flurry

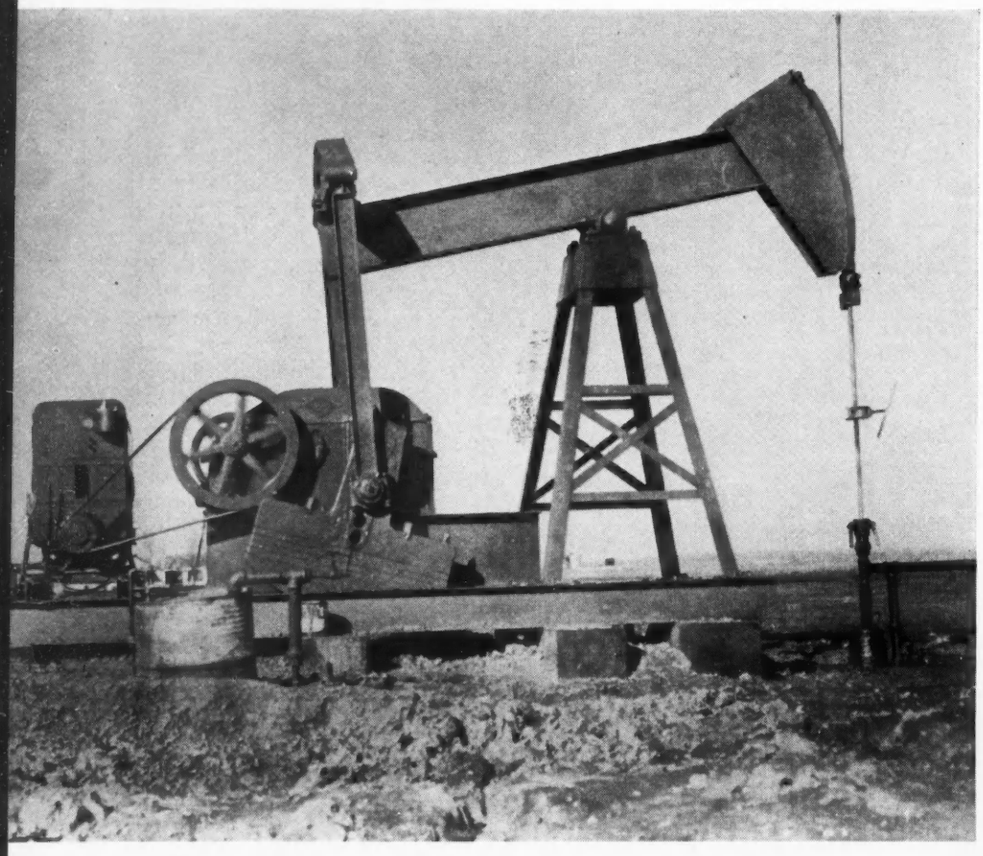
Total recovery from Munger 1-A is 150,000 barrels to date. Subsequently, Deep Oil Development Company completed 10 additional deep wells in the neighborhood of the discovery and contrary to the customary trend of events in oil fields, none of this caused a flurry of deep drilling.

This is best explained by John F. O'Donohoe, president of Petroleum Producers Company and a director in Deep Oil Development Company, who says:

"We could drill shallow wells for $2,000 and get enough oil to make them profitable. The depression period somehow had little encouragement for chance taking. Besides that, the deep production was from formations of high lime content. So deep production was a reality for six years before it became a boom. We could drill 10 shallow wells for the cost of one deep test."

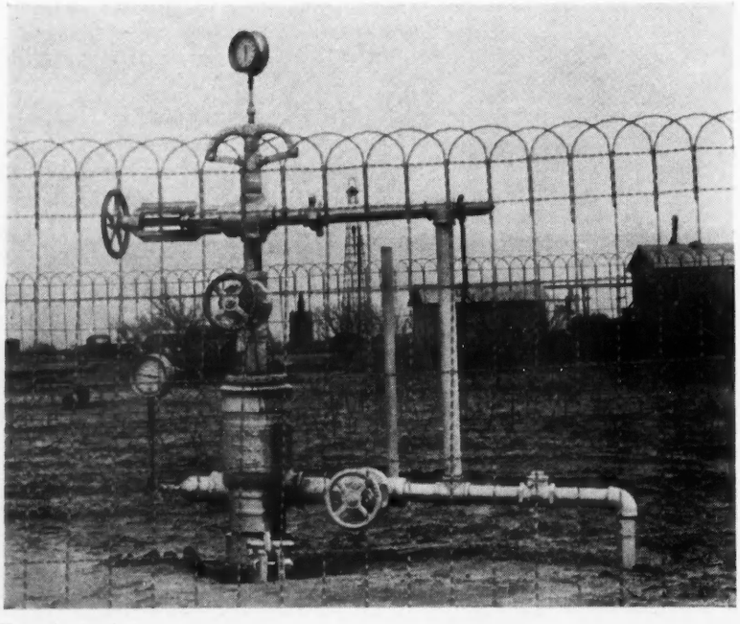
O'Donohoe still recalls his purchase of a K. M. A. lease at $10,000 an acre in 1919 with a 20-barrel well

Producing Practices



FOR FLOWING: Single gate valve Christmas trees are used for flowing wells. Special connections for restricting the flow to take full advantage of gas pressure are essential to long flowing life.

FOR PUMPING: Individual Pumping units, powered by gas or gasoline engines, are common.

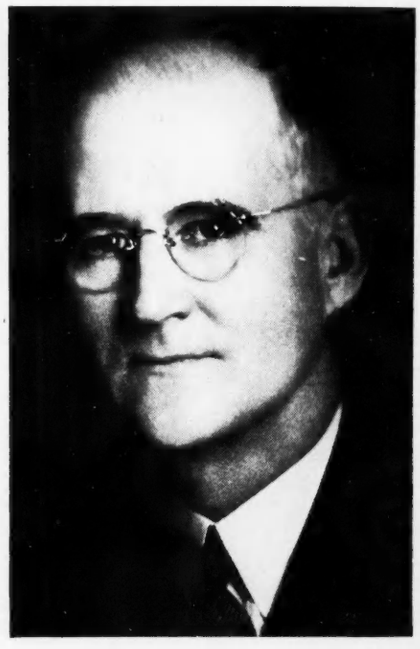


as the reward for his first hole. The lease went back to the land owners, since half the cost was to be paid out of oil.

But it was O'Donohoe and his Petroleum Producers Company who finally moved deep production out of its tiny spot and set off the fuse for deep development at K. M. A. His company's No. 73 Munger established an allowable of 164 barrels April 17, 1937. The hole was acidized and shot twice. The number of the well is evidence that there was no hesitation about drilling shallow wells while deeper production was a reality nearby.

Meanwhile some dry holes had been drilled in K. M. A. and these had served notice that even a mile may be a long distance in oil development. Later development may prove some of these failures to have been

One Man



BECAUSE: John F. O'Donohoe is not the only man interested in deep drilling at K. M. A., but he is singled out because he witnessed the whole development of the Wichita Falls producing area from Petrolia through Electra, Burkburnett, the first rush at K. M. A., the settled shallow production at K. M. A., and finally because, as president of the Consolidated Oil Company, he moved the limits of deep production by completing First National Company No. 73, the well that touched off the fuse which exploded the charge that is now the rush to develop a large oil reserve.

IN K.M.A. FIELD ARE - WILSON *Portable* RIGS!

Operators in K.M.A. Field Using Wilson Rigs . . .

L. T. Burns
W. B. Omohundro
Jennings Drilling Co.
Howe Brothers, Inc.
Harvey Drilling Co.
Seibold Drilling Co.
Paine Drilling Co.
Norwood & Dillard
R & G Drilling Co.
Mabry & Griffey
Prince Bros. & Gehle
O'Donohoe, Gibson & Bovuree
T. J. (Tommie) Carter
Target Drilling Co.
Mandeville & Thompson
P. A. Browning
Grace & Woods
Price & Wilson
Orville Tilley

Wilson Atlas Model Rig

This rig has a rated capacity of 8,000 ft. It is designed to accommodate engines up to 250 H.P. each. It can be furnished with gas, gasoline or Diesel power units. 48" diameter drum flange and 10" wide, dual, full wrap brakes. Drum equipped with special rolled steel water circulating brake rings. Equipped with 7" chrome nickel, heat treated steel drum shaft and 5" chrome nickel, heat treated steel cathead shaft. Drum shaft extension for Hydromatic Brake installation is standard equipment.

REASON . . . Wilson Rigs Are Doing the Job with POWER, SPEED, and DURABILITY of Rigs Costing as much as 3 times More!

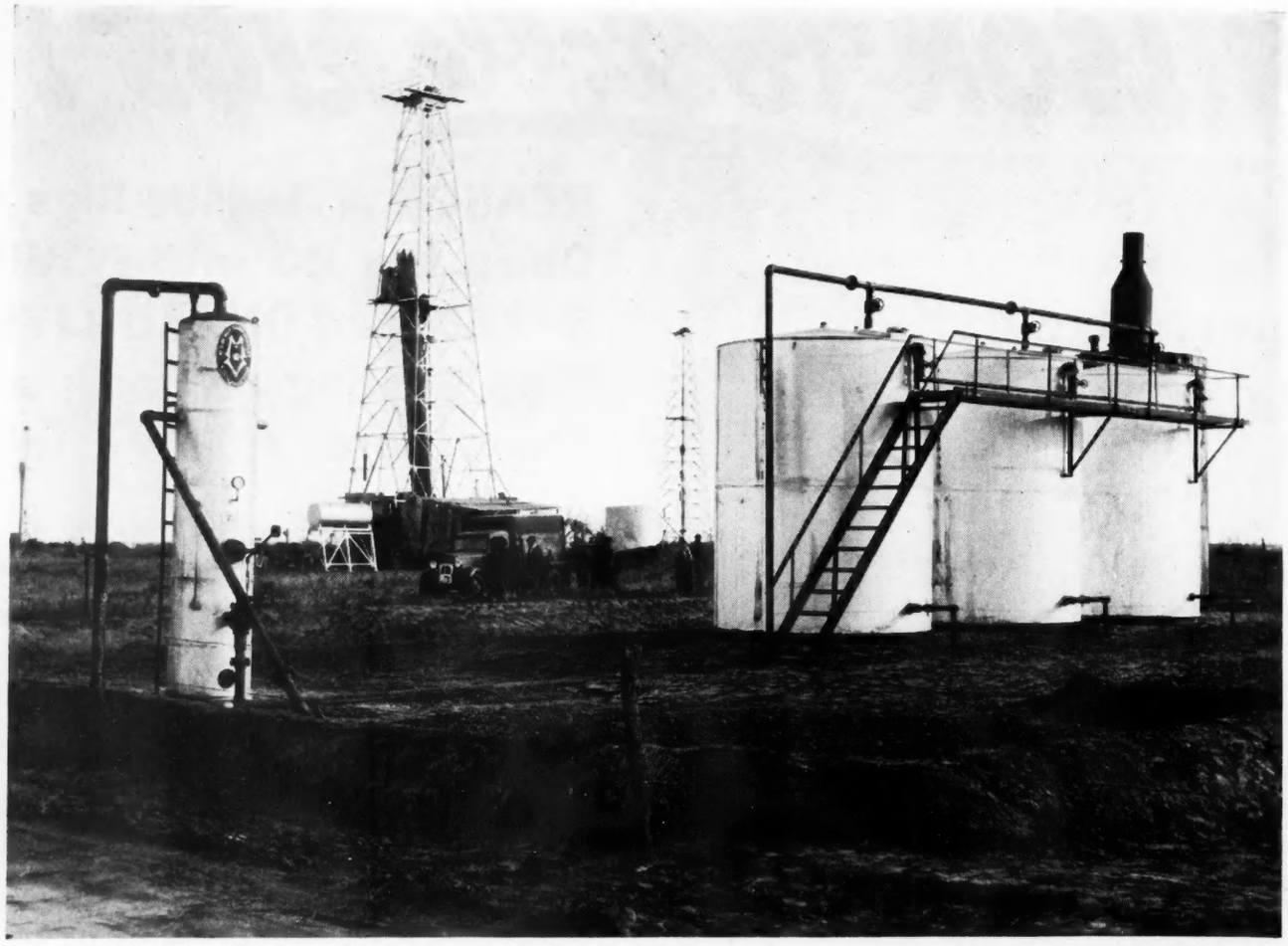
K.M.A. is the "hot spot" of '38 . . . and Wilson Manufacturing Co. is helping operators to develop this field quickly and profitably by providing efficient and dependable *Portable Rotary Rigs* which cost less from start to finish. Investigate Wilson Portable Rigs now! Ask the operator who owns one!

Both the GIANT and ATLAS Model Rigs are equipped with the *Wilson Chain Drive Transmission* which transmits *35% more power* to the point of action than conventional *drives*. This exclusive feature alone assures you maximum power . . . at less cost!

We have INCREASED OUR CAPACITY and are now able to fill orders in minimum of time.

● Atlas Model Rig equipped with 2—200 H.P. Diesel Engines.

Tankage



FLOW TANKS ONLY: Flow tank batteries with one separator are sufficient for tank requirements, since ample trunk lines and nearby storage remove any necessity for lease storage. Output is restricted to 58 barrels per day under proration.

the result of improper drilling, lack of sufficient coring and insufficient knowledge of formations.

Success of Petroleum Producers Company not only extended deep production a quarter of a mile but it brought a daring spirit into the area. So daring was Jack Kadane that he moved outside the limits of shallow production and more than a mile to the southwest. His Mangold 1 was located after survey had indicated a magnotometer high. Cuttings indicated a sandy lime between 3700 and 3705 feet, so casing was cemented at 3650 feet and drilling was continued with cable tools. Instead of a combination of lime and sand, a true sand was found between 3705 and 3752 feet and a flow of 2068 barrels in 12 hours became the highest initial output of the field. The oil corrected to 44.1 gravity. Bottomhole pressure of 1800 pounds was recorded.

Within the boundaries outlined by outpost producing wells and wells that have had saturation

Pipe Lines

GATHERING LINES ONLY: Four major trunk line systems, Gulf Refining Company, Pipe Line Division; Magnolia Petroleum Company, Sinclair Refining Company, Pipe Line Division; The Texas Pipe Line Company, serve the field. Continental Pipe Line Company has a line to the refining plant of Continental Oil Company in Wichita Falls. When Stanolind Pipe Line Company withdrew from the area, it left its Red River crossing south of Devol pump station intact. This concern is now considering reentry, which would require building about 25 miles of line and one pump station. Other than trunk lines that may enter, only gathering lines will be needed for K. M. A. deep development.

NATIONAL BANK
OF
TULSA
TULSA, OKLAHOMA

Statement of Condition, December 31, 1937

RESOURCES

Cash and Due from Banks	$25,420,079.74	
U. S. Government Securities	13,946,926.80*	
Other Bonds and Warrants	6,070,716.18*	$45,437,722.72
Loans and Discounts		17,686,580.22
Overdrafts		1,468.01
Income Receivable Accrued		130,731.78
Stock in Federal Reserve Bank		180,000.00
Investment in Bank Premises		2,655,720.62
Customers' Liability under Acceptances		10,075.10
TOTAL		$66,102,298.45

LIABILITIES

Deposits		$59,623,011.20
Acceptances Executed		10,075.10
Income Collected not Earned		60,652.78
Interest, Taxes, etc., Accrued		76,564.59
Reserve for Preferred Dividends		22,500.00
Capital — Preferred	$1,500,000.00	
Capital — Common	2,250,000.00	
Surplus	2,250,000.00	
Undivided Profits and Reserve	309,494.78	6,309,494.78
TOTAL		$66,102,298.45

*Of the total of $20,017,642.98 U. S. Government Securities and Other Bonds and Warrants $14,170,818.71 par value mature within five years.

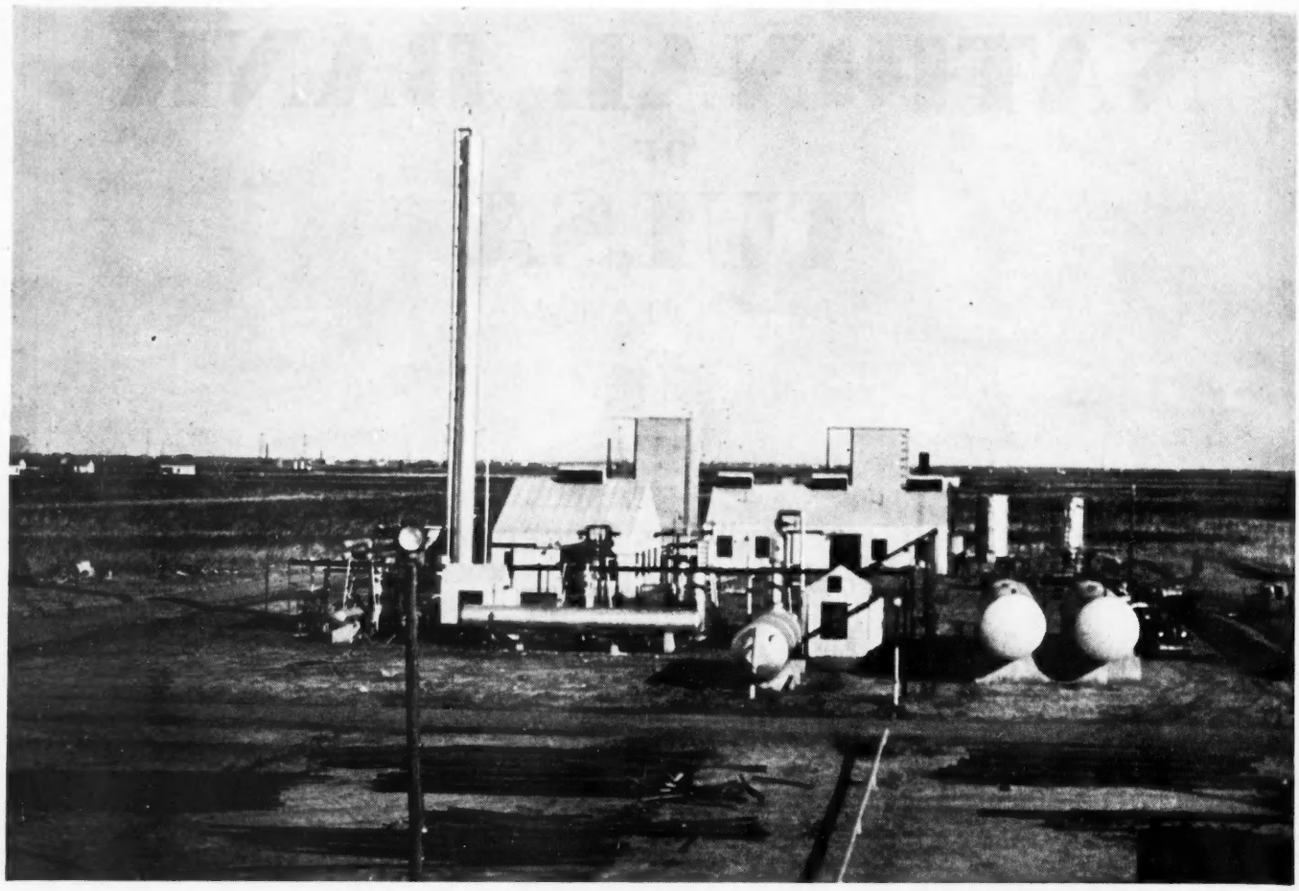
COMPARATIVE DEPOSITS

December 31, 1933	$28,016,837.43
December 31, 1934	$37,292,321.66
December 31, 1935	$46,600,899.11
December 31, 1936	$56,870,480.59
December 31, 1937	$59,623,011.20

The Oil Bank of America

Member Federal Deposit Insurance Corporation

Repressuring



FIRST: The first concern to drill a deep producer at K. M. A. was first to adopt repressuring. Deep Oil Development Company put its combination gasoline plant and repressuring plant on the Munger lease where the first well was completed. A low productive well was converted into an intake well. The company holds full and part ownership in 32 wells in the area, and sufficient undrilled locations exist to raise the total to 100 wells. The plant is processing 1,000,000 cubic feet of gas daily from which it extracts 2½ gallons of gasoline per 1000 cubic feet. Engineers consider repressuring an essential operating method if the sands and limes of the Strawn series are to give up the estimate of 7500 barrels ultimate yield per acre.

within the Strawn section are 30,000 acres. For the present this is accepted as the proven area. The most easterly wells, E. J. Stump's Bishop 1, shown near the lower right corner of the accompanying map, failed to make a commercial producer, although it had oil in a member of the Strawn section. The western outpost well, Geir Brothers & Jackson's Ancell 1, is not completed but it found the sand saturated. It is low on structure.

The distance between these two wells is 10½ miles, indicating that the proven area will be about 10 miles wide at this point. The distance between the outpost north and south wells is 6½ miles.

Within this area are dry holes, which must be discounted because drilling methods of the time they were put down are not equal to those of today, as many of these did not have the advantage of acid treatment and coring.

Geologists, however, predict that there will be areas of no production within the field. They base this on the expectation that tight lime will be found with too little porosity to allow oil accumulation.

Looking North

But the deep play at K-M-A offers encouragement for still further extensions, especially to the northwest. The well in the limelight is Rathke Oil Company's Burnett 1-A, Section 4. H. & T. B. Survey, Abstract 572, a quarter of a mile north of Gulf Oil Corporation's Burnett 43-A, now plugged, which had oil within the Strawn series in 1929.

The Gulf well, with an elevation of 1142 feet, had top of the lime at 3265 feet, giving it a minus depth of 2123 feet. The producing well nearest this well is King Oil Company's Waggoner 1, Block 8, M. A. Willis Survey, Abstract 548, whose minus elevation at the top of the lime was 2626 feet. The wells are four miles distant.

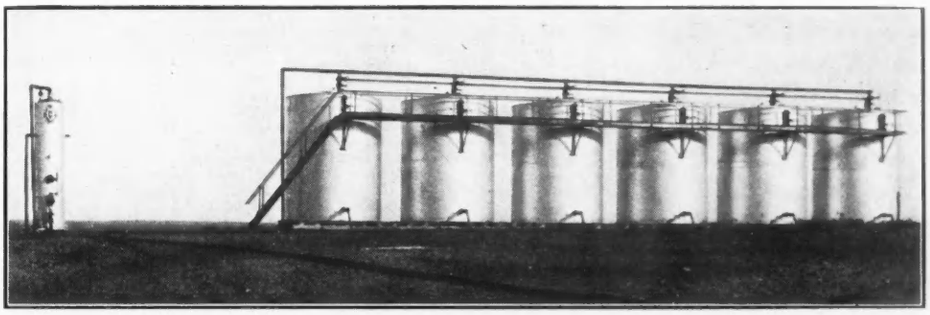
How Many Wells?

Since the Gulf well had oil in the Strawn series, first at 3570-75 feet and between 3600 and 3612 feet, the possibilities of further north extension of deep zone production at K-M-A are excellent. A deep test was made of the Gulf well, which picked up the Ellenburger (Arbuckle) lime at 3715 feet and was drilled to 4295 feet.

Structurally the Gulf well is considered to have been drilled on top of the Bend Flexture at or near its convergence with the Electra arch. Only a small section of Bend series formations was found in this well.

The structural conditions known

Immediate Delivery... to K.M.A.



Battery of M & V Tanks and Separator at K.M.A.

Immediate delivery to K.M.A. is assured, as the M & V TANK COMPANY is located in nearby Wichita Falls, from where it serves the oil industry of the world with the famous M & V Storage Tanks and Separators.

M & V Welded Lease Storage Tanks, constructed of copper-bearing steel, with all seams welded both inside and out, are equipped with the new type thief hatch, constructed entirely of aluminum, and are spark proof and gas tight.

New high records for volume handled are being established by users of M & V Oil and Gas Separators. Extraction is complete, delivering dry gas to the line.

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WICHITA FALLS, TEXAS

BRADFORD SUPPLY COMPANY

KMA

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All lines of Standard Oil Field Supplies.

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Store: 601 Ohio
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Burkburnett, Texas
West Main St.

Albany, Texas **Anson, Texas** **Plainview, Texas** **Hereford, Texas** **San Antonio, Texas**

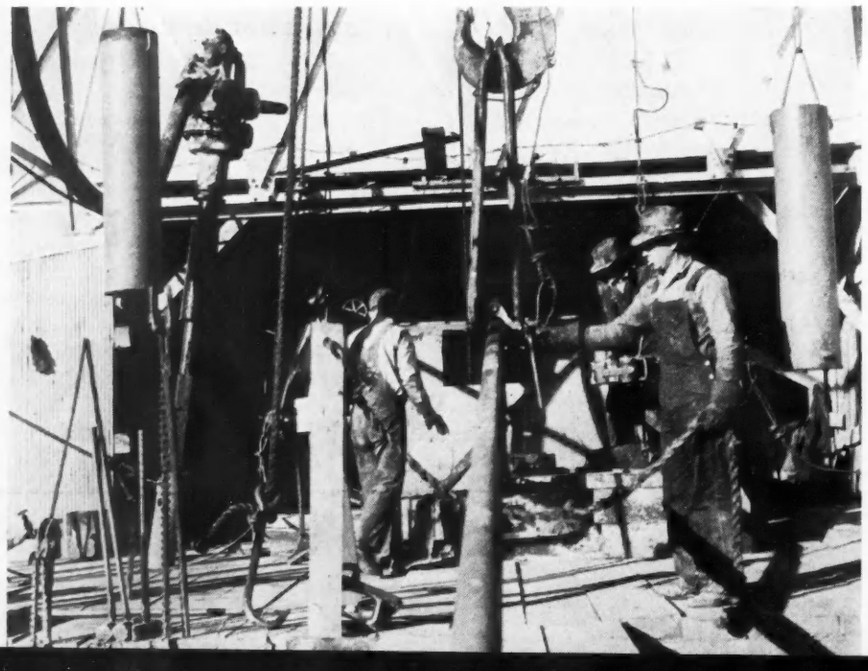
Drilling Activity

Operator—	Completed Wells	Testing	Drilling	Rigs & Dks.	Locations
Bishop Oil Company	—	—	—	—	1
Blackwell Oil & Gas Co.	—	1	2	—	1
W. H. Bohner et al.	—	1	1	—	—
The Bonner Company	1	—	—	—	—
The Bonner Co.-R. O. Harvey	1	—	1	—	—
Perry Browning et al.	—	—	1	—	—
Burk Royalty Company	1	1	—	—	—
L. T. Burns et al.	8	2	—	2	4
L. T. Burns-L. A. Long	—	1	1	—	—
L. T. Burns-McCutcheon	—	—	—	1	—
Cato Oil Company	1	1	—	—	—
J. A. Chapman-Edward McFarlin	—	—	—	1	—
Christie-Hickman Drilling Co.	2	—	1	—	—
C. W. Clark et al.	—	—	1	—	—
Clyde-Texan Oilfields Company	1	—	1	—	—
Consolidated Oil Co.-Joe Howell	2	—	—	—	—
C. O. Davis et al.	—	—	1	—	1
Deep Oil Development Company	24	3	1	—	—
Deep Oil Dev. Co.-The Bonner Co.	3	—	—	—	—
Deep Oil Dev. Co.-J. J. Perkins	2	—	—	—	—
Deep Oil Dev. Co.-Seaboard Oil & Gas Co.	2	—	—	—	—
E. C. Oil Company	1	—	2	—	2
Fain-McGaha Oil Corporation	—	—	1	—	—
Geier Bros. Inc.-F. B. Jackson Jr.	—	1	—	—	—
Grace & Woods	1	—	1	—	—
Haberle & Thornton	—	1	—	—	2
W. H. Hammon Hanlon-Buchanan, Inc.	1	—	—	—	—
Hammond Oil Co.	1	—	—	—	—
J. T. Harrell-E. H. Eddleman	1	—	1	—	—
Humble Oil & Refining Co.	—	—	1	—	—
E. W. & F. B. Jones et al.	—	—	1	—	—
Jack E. Kadane et al.	1	—	—	1	1
Kadane-Griffith Oil Company	—	2	2	—	—
Kadane-Griffith Oil Co.-King Oil Company	—	—	—	1	—
King Oil Company	2	—	1	—	1
King Oil Co.-Perkins-Cullum	2	—	—	—	1
R. H. King, Frabor-Hodges Co.	—	—	1	—	—
LeBus Bros. et al.	2	—	—	—	—
Lewis Production Co.	—	—	1	1	2
Magnolia Petroleum Company	—	—	—	—	1
Manson Oil Company	—	1	—	—	—
Jack H. Martin et al.	1	—	—	—	—
Tom B. Medders et al.	—	—	—	—	1
Melat & Graham	7	1	1	—	1
Mul-Berry Oil Company	—	—	—	1	—
Murray & Griffey (was Staley-Grace-Woods	—	1	—	—	1
Wheeler Nazro et al.	—	1	—	—	—
W. B. Omohundro et al.	1	1	1	1	—
W. B. Omohundro-J. I. Staley	1	—	—	1	—
W. H. Peckham et al.	1	—	—	—	—
Petroleum Producers Company	13	1	1	1	5
Prince Bros. Drl. Co.	—	—	1	—	—
Rathke Oil Company et al.	—	—	1	—	—
Reed-Glass & Crenshaw	4	1	1	—	—
R. G. Drilling Company	—	1	—	—	—
Ryan Consolidated Pet. Corp.	—	—	—	1	—
H. A. Schaeffer Oil Co.	2	—	2	—	—
Selby Oil & Gas Company	—	—	—	—	1
Siebold & Harvey	—	—	—	1	—
J. I. Staley Oil Co.	2	2	2	—	3
J. B. Stoddard et al.	—	—	—	—	1
E. J. Stump et al.	—	1	—	—	—
Sunray Oil Company	—	—	2	—	1
The Texas Company	—	—	2	—	—
Sam K. Vierson et al.	—	—	2	—	1
Mrs. Hulda B. Wallace et al.	—	1	—	1	1
Wichita Cotton Oil Company	1	—	—	—	—
Joe A. Worsham	—	—	1	—	—
Toddie L. Wynne, trustee	1	—	1	—	—
Totals	94	26	41	14	*33
Totals previous week	86	29	32	19	*30

*Numerous "paper" locations and pending obligations not listed.

CURRENT STATUS: Steady increase in field activity for K-M-A deep zone drilling is revealed in the jump to 94 producing wells against 86 last week. There are 15 pumping wells in the total, seven of which are not making the allowable of 58 barrels. The area has 114 active wells of which 41 are drilling, 26 are below the casing point and cleaning out to complete, 14 rigs and derricks and 33 locations.

Major companies are making slow entry but will be well represented shortly. Magnolia Petroleum Company has started its first test on recently acquired acreage, The Texas Company is drilling two wells, Humble Oil & Refining Company is drilling one well, Gulf Oil Corporation due to be the next major concern to begin activity as a flowing producer is near completion north of one of its leases. Continental Oil Company has large holdings through its purchase of shallow production when it bought Texhoma Oil & Refining Company several years back.



to exist plus the presence of oil within the Strawn series gives encouragement to northwest extension of present producing limits. Final area of production may reach 40,000 acres.

Determining how many wells the area will get demands consideration of the conflict between present well spacing and the recent proration order of the Texas Railroad Commission. All drilling has been on a 10-acre basis, with a few small leases demanding even closer spacing. But the proration order gives encouragement to drilling one well to 20 acres.

So far there has been no indication of withdrawing from the 10-acre unit, therefore the estimate of 3000 wells seems justified. No doubt some larger leases will have 20-acre spacing but these instances will be offset by field extensions to assure the 3000 well total. One-fourth of these wells should be drilled in 1938.

Vacancies and river bed drilling will increase the number of wells. Recently the Wichita river bed lease of the Vinmex Oil Company was thrown into the courts at the insistence of Governor Allred, who

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objected to the method of renewal. Since the lease has had shallow production from which the state has drawn royalty over a period, the opinion among oil producers is that title will remain with the company.

Proration

By writing an order which makes an allowance for acreage when wells are on 20-acre units, the Texas Railroad Commission sought to encourage that spacing for K.M.A. deep drilling. The order, however, permits 10-acre spacing but a second well on a 20-acre unit would not share in the allowance for acreage.

Maximum potential of 500 barrels was specified in the order, another provision by which the commission is seeking to discourage 10-acre spacing.

Thus far, however, drilling has been on 10-acre units with a few sites even smaller, despite the fact that producers favored 20-acre spacing by a large majority.

Casing rules require at least 100 feet of surface pipe, which must be cemented to the surface. The oil string must have a minimum of 100 sacks of cement and be tested to 1500 pounds pressure per square inch. Surface connections must stand 1000 pounds working pressure per square inch.

The proration formula provides that "the daily average allowable for each well shall be that proportion of 50 percent of the daily field allowable which the acreage assigned to the well bears to the total acreage assigned to all the wells in the field. The daily per-well allowable, after deductions have been made for wells incapable of making their allowable, shall be determined by dividing 50 percent of the total field daily allowable by the number of producing wells in the field. The total daily allowable shall be the sum of the well's acreage and per well allowable."

In the southern part of the field, where production is coming from a sand of 20 percent porosity, recovery may run as high as 12,000 barrels per acre. Where lime predominates in the saturated section output may be as low as 5000 barrels per acre. A fact in favor of high yield is that production is now coming from 200 feet down structure.

An average yield of 7500 barrels per acre is accepted as the preliminary yield estimate. From 30,000 acres ultimate yield will be 225,000,000 barrels.

It's a Boom

But Not Ribald and Reckless

THIS is an answer for the Wichita Falls hotel clerk who made this remark:

"The Burkburnett boom was no worse than this."

First some admission: That every hotel lobby location has been drilled singly, double, triple and quadruple since the K-M-A deep zone became a reality; that it is wise to wire for a hotel reservation before going to Wichita Falls; that a man with a map is again an oil man; that waitresses are flocking in under the assurance that tips are decent; that supply concerns' cars and salesmen are numerous; that potential millionaires are striding in field boots.

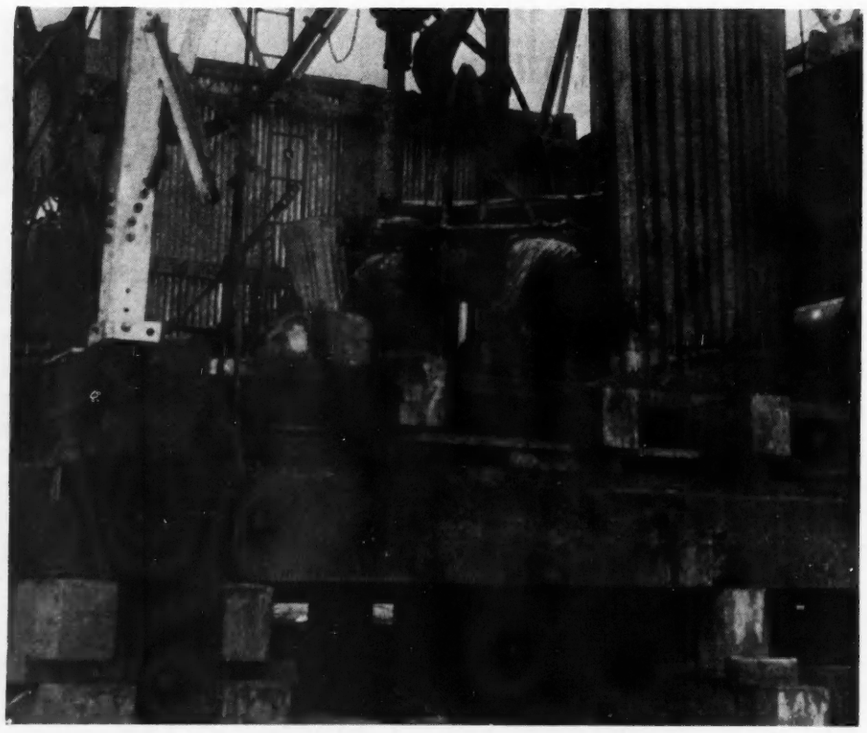
As for the present boom in Wichita Falls being comparable to that it knew when Burkburnett was being drilled, here is the answer:

Once upon a time a man who had over imbibed squared away in front of a bar and announced:

"I've been everywhere and I've seen everything."

Whereupon a veteran at throwing them down the hatch eased over and asked:

"Mishter, hav you'ver had delerium trimmins?"



"No," answered the braggard.

"Well, I wanna tell you, you ain't been no where and you ain't seen nothing."

Crowded hotels are evidence of a boom but Wichita Falls in the heyday of Burkburnett had a pair of tent hotels, four cots to a tent, or was it six? Anyway a cot cost $1.25 for a night and the renter took a chance on the honesty of his mates. That was good sleeping in 1920.

There were no Sunday picture shows then and the crowds milled around in attitude of welcoming the start of anything, even a riot to break the monotony.

Courtesy Currency

Buying a car then was frequently the informal little transaction of going down the sidewalk and asking each owner if he wanted to sell. When a deal was made, payment was in cash, no title requested, since the car would be discarded before a little thing like a stolen car could be checked.

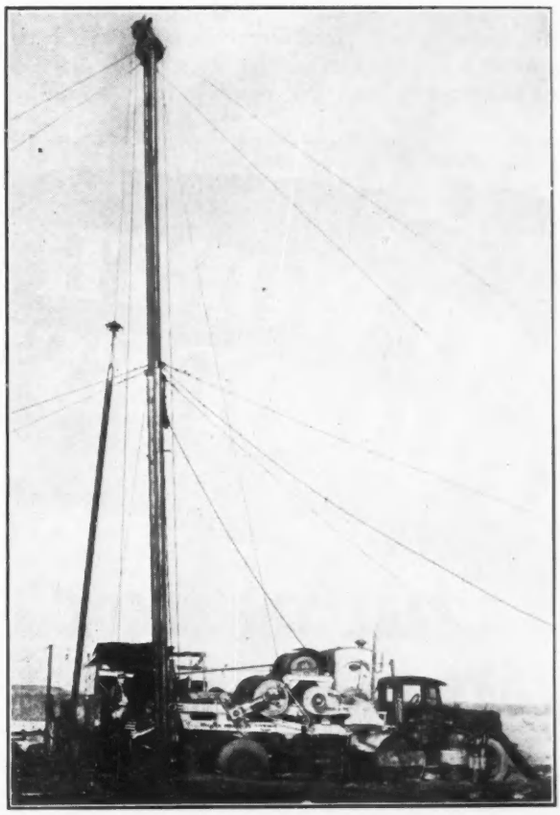
Men who traveled at night around Burkburnett adopted the scheme of carrying a few courtesy bills. They prevent beatings when the hijacker found no loot. Then the traveler would dig another pair of bills from under the car seat as protection against another hijacking.

During that boom some wag wrote a classic in a letter to the police chief. He and some friends gathered after each pay day for a little poker game. Once they were raided by the officer. The next time hijackers interrupted the game. Thus it went with seldom a chance for a finish at ace catching, so the letter writer wanted to know why the officers and the hijackers could not make a simultaneous visit.

Too Small

The glass in no office door was large enough to list the names of all the million dollar corporations that occupied one room. Who could forget the office that had no window, so an artist painted a window on the wall and hung curtains for reality. The office housed a pair of insurance peddlers, a rig contractor and the desk of an oil journal writer (who happened to be this very writer). Besides that a stenographer from down the hall made the room a meeting place with her boy friend each afternoon or evening, depending on the con-

Doing the Job "RIGHT" In K. M. A.



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dition of the road from the field. Furthermore they got married but did not live so happily thereafter.

A fair assortment of oil field weather in that day was for a period of twice around the clock to produce sunshine, rain, hail, sleet and finish off with a sand storm.

The Greek owner of a shoe shining emporium raised his prices from 15 cents to 25 cents, only to learn that pride did not go up with price. What happened to his trade was an indication that the boom was tapering off but no one gave it any heed. Dwindling attendance before the bucketshop boards was another clue to coming events.

Ante Goes Up

A contractor paid a premium to get a boiler hauled out to the field and a few days later found the boiler beside the road. Much later he found the hauler and learned that another contractor had doubled the hauling fee on condition that the hauler get on the job at once.

There was waiting in line and a long line when buying a railroad ticket. At meal time there was waiting in line behind the chairs of each lunch counter and the newcomer betrayed himself by being vexed at such. In the midst of all the rush there was a lot of waiting.

High Living

Back in 1920 in Wichita Falls men as well as women lived in grand style with no visible means of support. Only half of that is true now.

Wages for roughneck labor got up to $15 a day but even that choice wage was hard put to keep pace with the cost of room, board, clothes and luxuries. Perhaps it was the Burkburnett roughneck who in striving to account for the $50 he had Saturday night had this conversation with himself Sunday afternoon:

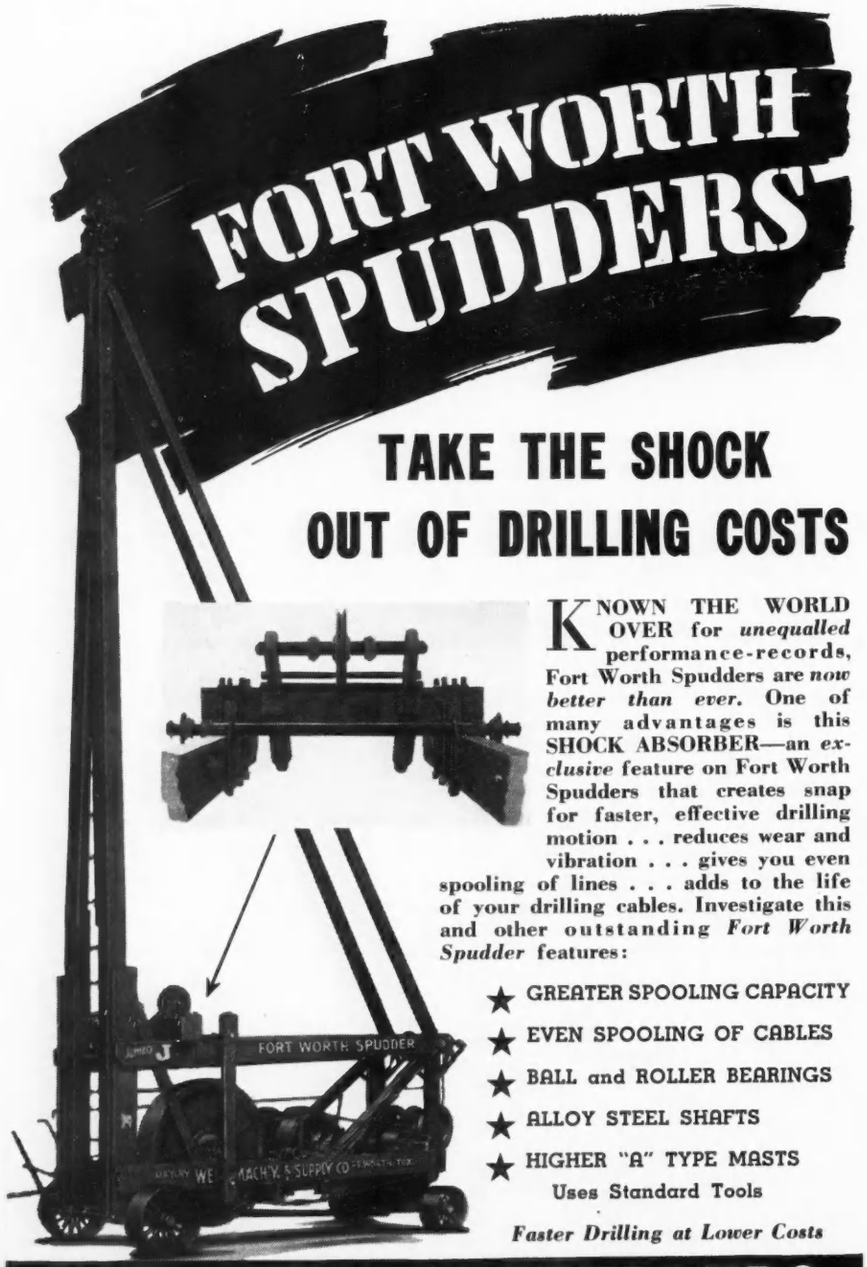
"Paid $2 to get to town and spent $18 on wimmin and liquor. That makes $20. Guess I must have squandered the rest."

Even the ribald and reckless conduct was all in the spirit of good clean fun. Those who did not come out of the Burkburnett boom with money came out with memories that are lasting.

Big Town Now

Furthermore some men came out with money, which is the reason the development of the deep zone at K-M-A is not going to be a boom equal to Burkburnett. This one may bring a lot of people to town to take care of the drilling of a few thousand oil wells but there are facilities for taking care of a crowd now. Wichita Falls has hotels and office buildings, as well as fine homes, small homes and country clubs. Part of the Burkburnett profits went into these things. Bringing hundreds of visitors into a modern city is not going to bring about anything like the result of bringing hundreds of visitors into a small western town that was called upon to double its population, with some to spare, in a few months.

Again and finally the answer to the hotel clerk as well as all others who are making comparisons between the Burkburnett boom and the K-M-A rush, what is going on now is no match for 17 and 18 years ago, which is a good thing.



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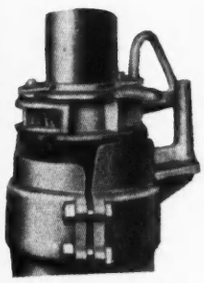

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Multiple Wells

IN GULF COAST HIGHLY IMPORTANT ECONOMICALLY

By EARL S. POST, Staff Writer

EXPLORATION of multiple sand oil fields, especially along the Gulf Coastal trend, brings about a new type of development, that of multiple wells—twins, triplets and even quadruplets. Four wells, vertically drilled and within 25 to 80 feet from each other, sometimes are found in these coastal areas producing from as many different sands.

Want Cream Quickly

At any place in which several sands are productive, operators are prone to get the cream as quickly as possible by this multiple well operation. An 80-acre lease is equivalent to 160 acres if two sands completely underlie the tract, and on the basis of one well to 10 acres, 16 wells can be produced.

Shallow Wells Easy

Where multiple completions are at shallow depths, the operation is not hazardous from a profit recovery standpoint. The number of wells per lease may be increased proportionately to the number of sands productive, while virtually no increase in labor is required for handling the production. The recovery, likewise, is obtained over a shorter period, the entire lease securing its flush return during the shortest possible time. When the operation reaches its pumping stage, all units can be adequately operated as a single unit, close proximity of the wells not having a material influence on the manner of artificial lift.

As has been pointed out, shallow wells, or those comparatively cheaply drilled, under ordinary conditions will recover enough crude during their lives to pay all costs, plus desired profit. In fact, the saving in drilling and equipment through prolonging the production period of the lease by stage recovery would in many cases be overshadowed by the cost of maintenance.

Deep Areas Different

In the deeper areas, however, the situation takes on a different complexion. Cost of drilling versus desire for immediate recovery, required offsetting, or production economy are in a large part the alternate answers for multiple drilling.

Small lease holdings and need for more immediate production cause many of the larger operators to completely drill up a lease or leases in all of the known sands. The forced offsetting program, plus obvious drainage on the reservoir, then spreads the campaign to all portions of the field. In fact, much drilling of very thin sand sections results from such zeal. Some of these wells hardly pay actual drilling cost, proper profit on investment and operation cost. This especially is true where wells are to be carried to sands ranging from 4000 feet to below 8000 feet.

Mechanical Aspects

The mechanical aspects of the twin well development, are very interesting. As has been pointed out, the majority of the twin well work has been in areas where sands are in a lensed condition. As a result, definite information must be obtained before the drilling of these multiple tests to determine their producing possibilities. The present favorite method is to locate a key well, in which the entire section is carefully cored and each sand given drill stem tests. The base sand of the multiple group then is produced in the initial test. A second location is projected to one of the other sands proved productive by its companion well from 25 to 80 feet away. Third and fourth wells are drilled on the same master location.

Gun perforation has become a key operation to this method of production. To keep a definite check on sands, virtually every multiple well must drill several sands to definitely assure production in its twin. Casing then is set through the zone and perforated opposite the desired level.

Many Multiple Sand Fields

The program of multiple drilling obviously is of far reaching proportions, as considerable production along the Coastal trend would be delayed if operators generally resorted to stage recovery. More than half of the fields from the Rio Grande in Texas to the delta in Louisiana are multiple sand producers, with their lenses sufficiently overlapping that drilling of more wells to a location is possible. While no figures are available on added production through these companion completions, it is evident that the total is quite sizeable.

Economic Depth Limit

A highly interesting phase of this development is the trend toward deeper wells. In numerous instances multiple operations are carried on below 5000 feet. This brings up the question: What depth can be considered the economic limit for multiple drilling?

Through agreement, one multiple sand field, which is producing distillate, is taking its recovery from one zone at a time rather than drilling several wells. It was determined that the single recovery from any one sand would be inadequate to warrant drilling of 8000-foot tests. The combination of the several, however, is considered quite profitable. It can be seen, therefore, that development costs and production return will be balanced before the final decision for a development program of a multiple sand oil field.

Hydraulic Removal

OF

Pump Valve Seats

ONE after another, the three lifting dogs in the valve pullers sheared off their pivot pins as the pipe line attempted to pull a set of valve seats in a battery of 7½ x 36-inch triplex plunger pumps which had been operating for something over 25,000 hours under a station pressure of 740 pounds per square inch.

Replacing the original pins with a high grade of tempered steel to avoid the source of breakage, the pullers were again tried, this time failing either through stripping of the puller bolt thread or through elongation and ultimate failure under tension.

When the failure of standard types of valve seat pullers seemed to indicate the need of bringing in a boring mill and setting it up atop the pump barrel to bore out as much as possible of the slightly tapered seats and permit the thin shell remaining to be knocked free, an attempt was made to shorten the down time and eliminate the expensive machining operation by an ingenious set-up of two hydraulic jacks.

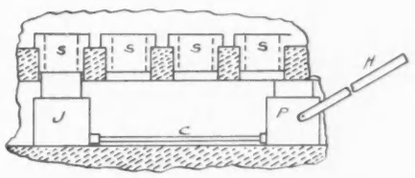
Hydraulic Jacks

One was provided with a ram head which just fitted within the lower end of seat bore, the other was set up to react against the solid pump casting, and thus permit the hydraulic pressure set up within it to be transmitted through a short section of pipe, to the reacting chamber of the pump below the valve seat.

These hydraulic jacks, nominally designed to put up a lift of 4½ tons with the handle furnished by the manufacturer, had their capacity slightly more than doubled by increasing the length of pump handle on the pressure (as differentiated from the lifting) jack.

Superior Operation

Access to the suction or discharge chambers of these pumps was obtained through removing



S, valve seats; C, connecting pipe; H, jack handle with extension; J, lifting jack; P, pumping jack.

the manifolds thereto, and the working jack slipped into the space until spotted below the seat to be lifted. Then, with a connecting pipe of the proper length fitted, the outer jack was operated, the oil under pressure finding its way through the connecting line to the ram of lifting jack "J" of the sketch and exerting full pressure against the base of the valve seat.

Although the maximum effort available with the jacks was only 18,000 pounds, as against a theoretical lift of 16 times that figure with the screw-type puller, most of the valve seats which had resisted the maximum pull exerted by the lever and thread yielded readily to the direct lift of the jack. Where full hydraulic pressure failed to budge the tightly wedged seat, a sharp hammer blow against a heavy mandrel held against the upper edge of the seat sufficed to break the grip and permit the hydraulic pressure beneath to lift the part.

During the job of valve seat removal, one lot of 48 seats was forced out by the jacks in 4 hours and 12 minutes total time, from the setting of the jack under the first seat until the connecting line split from excessive pressure when No. 49 resisted even the 100 percent overload imposed by the lengthened jack handle and the helper jumped on the handle.

Jarring Aided

Having thus determined the weak spot in the jack-linkage, the pipe was replaced with another of the same size and weight, jarring being resorted to as preliminary to boosting jack pressure on this refractory seat.

By providing connecting pipe links of varying lengths, it was possible always to have the pumping jack located at the end of the pump barrels, so as to permit full working stroke of the pump lever and thus obtain maximum pressure in the shortest time.

Pipe line engineers figured that the use of jacks over the only alternative available—that of cutting out the seats with a portable boring mill—cut the time for repairs to a fifth the expectation, and likewise saved upwards of 75 percent of estimated cost.

MEN IN THE INDUSTRY'S NEWS

R. C. STONER IS ELECTED A MEMBER OF THE BOARD OF DIRECTORS OF STANDARD OIL COMPANY OF CALIFORNIA

STONER IS GENERAL MANAGER OF COMPANY'S PRODUCING DEPARTMENT SINCE 1931.

THE Board of Directors of Standard Oil Company of California January 7 elected R. C. Stoner, general manager of the producing department, a director. There was a vacancy on the board due to the death of Kenneth R. Kingsbury in November, 1937.

Stoner was graduated from the University of California in 1912, and the following year joined Standard Oil Company of California. His first work was in the geological division of the producing department at the home office in San Francisco. In 1917 he went to the San Joaquin Valley as petroleum engineer. Two years later he returned to the home office, where he served a year. He spent a year in the Rocky Mountain area in 1920, and from 1921 to 1924 was manager of geological and exploration activities in Mexico. He returned to San Francisco in 1925, as assistant general manager of the producing department, and became general manager in 1931, which position he has held up to this time.

The board of directors also elected M. E. Lombardix a vice president. He has been a member of the board since 1927.

R. C. STONER

FREDERICK G. CLAPP and family were recently in Herat, western Afghanistan, where Clapp has business for Inland Exploration Company, which holds the oil concession on that country. Herat was Clapp's headquarters in 1934 at the time of the discovery of the now well-known Tirpul oil seepage by him and the then governor of the Province.

LESTER DERIG, driller for the Rocky Mountain Drilling Company, was injured last week when thrown from the derrick platform at Ohio Oil Company's Cash 5 well near Lusk, Wyoming.

JOHN P. ROBERTS has resigned as assistant director of the Kansas Corporation Commission's oil and gas conservation division to become assistant managing director of the newly organized Kansas Independent Oil & Gas Association. He will remain with the state department until a successor is selected.

DAVID MATTHEWS, driller with Midwest Drilling Company, fell from the 30-foot platform of a rig near Lusk, Wyomnig, last week. He is being treated in a Lusk hospital.

THEODORE G. BOWLER, Clare, Michigan, has been named counsel for the land department of Sun Oil Company's Toledo office. He will make his headquarters at Mt. Pleasant, Michigan. Bowler in 1935 was elected Clare County prosecuting attorney, and was the youngest prosecutor in the state.

GUS DOLL has been named president of Valvoline Oil Company, Cincinnati, Ohio. He succeeds Howard Edwards, who was made vice chairman of the board. Chairman of the board is E. W. Edwards.

JOHN R. SUMAN, vice president of Humble Oil & Refining Company, will address the annual banquet of the chamber of commerce at Midland, Texas, on January 21.

NEIL McQUEEN, formerly active in Alberta oil development and recently of Vancouver, British Columbia, was in Calgary, Alberta, last week on business in connection with York Oils, Ltd.

C. H. BOSWELL, president of Cypress Oil & Gas Company, was injured January 8 when pinned beneath a falling derrick in the Patoka field, Marion County, Illinois. He was taken to the Vandelia Hospital, where his condition was described as favorable. Lloyd Tallman, Shelbyville, Illinois, stockholder in the company, was less seriously injured in the accident and is recovering at his home.

RUSSELL V. JOHNSON, consulting geologist, has returned to Calgary, Alberta, following a six-weeks' holiday visit to the Texas oil fields and Mexico. He traveled as far south as Mexico City.

MARVIN LEE has resigned as technical advisor to the Kansas state corporation commission, effective February 1, to enter consulting geological practice.

MAYNARD J. DAVIES, managing director of Davies Petroleum, Ltd., Alberta producing company, has been named to the board of British Trans-Canada Oils, Ltd.

KARL H. SCHMIDT, engineer for American Askania Corporation, Houston, recently resigned this position to become connected with Kadane, Incorporated, Wichita Falls, Texas. His official capacity with this company will be geologist and geophysicist.

J. K. ADAMS who has been in the Corpus Christi office of Mills Bennett Production Company has been transferred to the land department of the company with headquarters in Houston.

W. A. BELSTROM, vice president of Mills Bennett Production Company, has resigned his position with that company.

THOS. H. ALLAN, petroleum geologist and engineer, announces the opening of an office in the Bitting Building, Wichita, Kansas.

W. L. WALKER, formerly with Cities Service Corporation, has joined the land and lease division of the exploration department of Richfield Oil Corporation, Los Angeles.

HENRY C. REA, geologist for Inland Exploration Company, New York, was recently in northwest Afghanistan where he discovered an oil and gas seepage on a previously unknown anticline.

DEAN A. McGEE, vice president of Kerlyn Oil Company, Oklahoma City, and former chief geologist for Phillips Petroleum Company, delivered a series of four lectures on petroleum geology on January 4 to 7, to students and faculty members of the University of Kansas, Lawrence. The talks were sponsored by the department of geology.

DIED:

EDWIN E. WHITE, 54, geologist and general manager of Boston & Southwestern Gas & Oil Company, died January 6 at his home in Huntington, West Virginia, after an extended illness. He headed the company's oil exploration forces in Texas and was later transferred to Eastern Kentucky.

EDWARD HUGH McLEOD, 51, president of McLeod Oil Company, Ltd., and engaged in Alberta oil development for the past 15 years, died at his residence three miles east of Okotoks following a heart attack. His father, the late W. E. McLeod, was one of the organizers of

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ODESSA L. D. 683 Local 684

TULSA L. D. 681 Local 5-3204

OKLAHOMA CITY L. D. 785 Local 7-2725

WICHITA L. D. 59 and 116 Local 2-1431 and 2-1432

AND BRANCH STORES

the McLeod company, one of the oldest production companies in Alberta. He was a director of the company since its organization and, in its early history, often worked as a driller or tool dresser when capital to continue drilling operations was short. He became president of the company on the death of his father two years ago.

M. R. SHAFFER, 45, general manager of production for Cities Service Oil Company at Bartlesville, Oklahoma, died January 10 at a hospital in Kansas City, as the result of a throat infection. Shaffer had been with the Empire companies for more than 20 years. He was a native of Oil City, Pennsylvania, coming to the Mid-Continent first as an employe of Shell Petroleum Corporation. After a short time with that company, he joined Empire and worked his way up through the ranks to the position held at the time of his death. Surviving are his widow, three children and two brothers, George W. Shaffer of Shaffer Specialty Company, Tulsa, and E. J. Shaffer, independent operator of Hutchinson, Kansas. Funeral services were held at Bartlesville late last week.

C. F. GRAY, 51, district foreman for Stanolind Pipe Line Company, died January 6. He had been with the company for 20 years.

OTIS R. LANG, 57, drilling contractor well known in Alberta, Canada, and Montana, was fatally injured January 3 in an accident at the Range Three well, near Sunburst, Montana, when some casing fell off a truck, injuring his chest and puncturing a lung.

Courts

[*Continued from page 11*]

clarification of disputed points in the letter by going directly to Ickes. Arnott explained that he never doubted that the letter gave him authority to inaugurate a buying program to take distress gasoline from the Mid-Continent and East Texas spot markets, which the government charged was for the purpose of artificially raising gasoline prices for the benefit of major companies, but that it was customary to obtain a ruling from the committee's legal counsel on all such matters.

Arnott disagreed with the interpretation placed on the Ickes letter by Chaffetz, maintaining that his instructions to "deal with elements in conflict" essentially meant the tank car market which was depressed by surplus gasoline.

Defense attorneys were successful in bringing before the jury another piece of evidence in support of their contention that Washington officials knew of gasoline buying activities and approved of them. A letter by Ickes to B. P. Lientz, Kansas City, Missouri, on March 30, 1935, mentioned a report by the survey committee on small enterprises which showed that the outstanding difficulty of refiners was apparently due to "the disparity between posted crude oil prices and refiner realization." The letter continued: "This situation has been deplorable for many months, but it is my understanding that at present the activity of the stabilization committees is having a distinct effect in the improvement of refinery prices, and that were it not for old contracts, many of which are badly shaded with respect to the posted price, the independent refiner is approaching a normal market structure."

Miller Reviews Prices

James D. Miller was recalled to the stand as the last defense witness and testified that retail gasoline prices during 1935 in the Mid-Western area were below normal, except for a short period. Price comparisons showed that on only 3 Mondays during 1935 were prices in the Mid-West higher than prices for the United States as a whole, while on 1 Monday they were the same. Throughout the remainder of the year, Mid-West prices were lower. A prosecution attempt during cross-examination to show that Mid-West prices are normally lower because of the proximity to source of supply failed when Miller showed that low water transportation rates to the eastern seaboard nullified the differences in railroad freight rates.

Miller also testified that independent refiners from whom major company purchases were made, who are termed "dancing partners" of the major companies and "co-conspirators," increased production to a greater degree than all independent refiners combined. The government charges that the "co-conspirators" curtailed their production in furtherance of the alleged conspiracy to raise the tank car market.

An elaborate chart was introduced which Milleg said "showed clearly," by comparisons of prices paid by defendant major companies and those paid by jobbers and others on spot-market purchases that major companies consistently purchased at prices below the published market. His testimony on this point supported a defense contention that majors "followed" the market, rather than "led" the market as charged by the government. In answer to the charge that major company purchases were made at "uniform" prices, he testified that prices paid on the same day by different companies showed "a great deal of variation."

Many Exhibits

Approximately 1050 exhibits have been introduced and testimony of 80 witnesses heard since the trial, characterized as the most important trust prosecution of more than a decade, opened at Madison, Wisconsin, over three months ago. Since that time the number of corporate defendants have been reduced from 26 to 16 and the number of individuals from 46 to 37. Some defendants obtained freedom when government counsel moved to dismiss the charges against them at the conclusion of their case early in the winter because of "insufficient evidence," while others obtained acquittal through directed verdicts at that time.

The defendants are charged with conspiring to raise the East Texas and Mid-Continent spot tank-car prices between March 1, 1936, and April 30, 1937, through the operation of buying pools. Spot-market purchases, which the government charges were made at progressively and artificially increased prices through operation of the program, were reflected in trade journal quotations, which, in turn, were the basis at which major companies sold gasoline to independent jobbers. Through purchases of a comparatively small amount of gasoline on the spot market at "artificial" prices, the defendant major companies were unable to obtain the same prices for gasoline produced in their own refineries, it is charged.

Defense witnesses have testified that major company purchases were not for the purpose of "rigging" the market, not part of compulsory program or conspiracy and not out of line with needs of the respective companies who were unable to produce sufficient gasoline to meet their demands, but were part of a plan carried on with the knowledge of Washington officials to aid independent refiners who were facing ruin.

Texas to investigate trust law violations

An investigation into violation of Texas anti-trust laws by a Travis County grand jury was ordered last week by Ralph Yarborough, Judge of the 53rd District Court.

Yarborough, who is a potential candidate for Attorney General of Texas, advised the grand jury that it had unusual powers to investigate such violations, and suggested that the penal code be followed exactly.

I.P.A.A. executive committee to meet January 18

Chas. F. Roeser, president of the Independent Petroleum Association of America called a meeting of the Executive Committee of the association for Tuesday, January, 18, at 2:00 p.m., at the Biltmore Hotel, Oklahoma City, Oklahoma. The meeting of the Interstate Oil Compact Commission will be held on the same date.

Members of the executive committee are J. Steve Anderson, Oklahoma City, Oklahoma; H. D. Atha, Mount Pleasant, Michigan; J. A. Aylward, Wichita, Kansas; J. S. Bridwell, Wichita Falls, Texas; Russell B. Brown, Washington, D. C.; Frank C. Condon, Longview, Texas; Harold B. Fell, Ardmore, Oklahoma; Wirt Franklin, Ardmore, Oklahoma; N. T. Gilbert, Tulsa, Oklahoma; Winston P. Henry, Houston, Texas; H. M. Stalcup, Tulsa, Oklahoma; Van S. Welch, Artesia, New Mexico; and Ralph T. Zook, Bradford, Pennsylvania.

Oklahoma City.—Members of the Oklahoma City Geological Society, in meeting January 10, heard J. T. Richards, district geologist for Gulf Oil Corporation, talk on Yellowstone National Park and Alaska. Several reels of films were shown in conjunction with the talk.

Hays, Kansas.—Stanolind Pipe Line Company will move headquarters for Russell and Ellis counties to this city, it was announced by company officials last week. Present office is in the town of Gorham in Russell County.

Showing Slight Improvement

Better outlook of general business conditions has helped in halting downward tendency of prices; crude output satisfactory

SINCE the beginning of this year the markets of the oil industry have shown some signs of improvement.

Prices have remained largely unchanged, from well to service station, during the past 10 days, and hope is given that the prices may continue at the established levels in the immediate future.

This fact that prices have been holding recently is encouraging, as the industry's markets have been unsteady for several months, with the prices of gasoline consistently working downward.

General Situation Brighter

The better tone of the oil industry's markets lately may have resulted in part from some improvement noted in various lines of business, and from a more cheerful attitude throughout business and the public.

In the oil industry there has been, apparently, some recognition of this more optimistic general feeling, and an increase of faith in the ability of the industry to continue to show satisfactory results.

Plant Operations Curtailed

While the industry undoubtedly is feeling the effect of the more hopeful general situation, it also is benefiting from some improvement of conditions within the industry itself.

Particularly encouraging are the most recent statistics on refinery operations. Heretofore the refineries have not been holding down their output in strict conformity with market requirements, and the production of various products, particularly gasoline, has not been sufficiently moderate.

But in the week ended January 8 crude oil runs to stills were further reduced 10,000 barrels a day, to an average of 3,210,000 barrels daily, which was only 3.2 percent higher than in the corresponding week a year ago. This slight increase over a year ago is fully justified by the fact that petroleum demand has been running lately around 10 percent higher than a year ago.

Crude Production Justified

Crude oil production also has been running at satisfactory levels. In the week ended January 8 the output of the wells of the United States averaged 3,437,100 barrels daily, which was 10.2 percent more than in the similar week a year ago.

This gain in production over a year ago, like the increase in refinery operations, is largely justified by the rise that has occurred meanwhile in the demand for petroleum.

Crude Stocks Moderate

Another favorable factor is the situation regarding crude oil stocks.

The present inventories of crude oil in the United States are only about 5 percent larger than those on hand a year ago. This year-to-year gain in stocks has been relatively small in relation to the substantial expansion meanwhile in the demand for petroleum, which was mentioned above.

The total stock of crude oil in the United States aggregated 303,294,000 barrels on December 25. That was 5.1 percent more than the crude storage held one year previously.

Fuel Oil Stocks

Fuel oil inventories also represent a favorable factor. The stocks of fuel oil on January 8 aggregated 119,146,000 barrels. That was 12.4 percent more than the supply on hand one year before. But such an increase is smaller than the gain that has occurred in the meantime in fuel oil consumption. The fuel oil demand lately has been around 15 percent higher than at this time a year ago.

Gasoline Situation

The gasoline situation remains the principal point of weakness in the general market situation in the oil industry.

Storage of gasoline continues far out of line with market requirements.

In the week ended January 8, gasoline stocks increased further by approximately 2,000,000 barrels, continuing the sharp increase which has been under way for several months. At that new level of almost 80,000,000 barrels, the gasoline stocks were the largest on hand at this time of the year in the history of the industry. Those inventories were 21.3 percent greater than the supplies held one year previously.

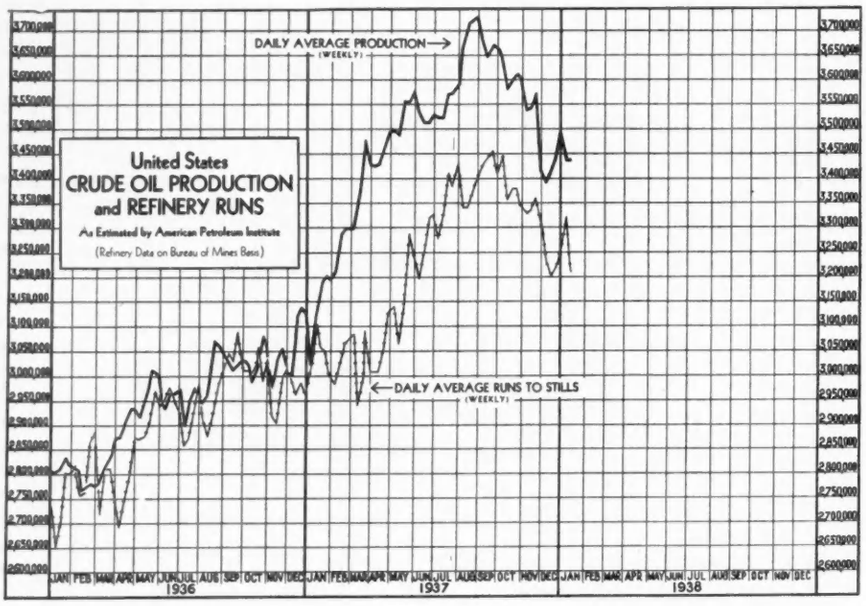
This large gain in gasoline storage over a year ago obviously is not justified by the market situation. The total demand for United States gasoline late-

Trends of United States Production and Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	Gas & Fuel Oil Stocks (Barrels)
January 2, 1937	3,121,400	3,030,000	287,659,000	62,661,000	106,330,000
January 30	3,194,050	2,995,000	285,384,000	69,540,000	102,078,000
February 27	3,296,100	3,085,000	288,121,000	78,786,000	99,534,000
March 27	3,431,300	3,060,000	293,587,000	*83,538,000	96,591,000
April 24	3,496,400	3,125,000	300,737,000	82,303,000	94,100,000
May 29	3,573,000	3,245,000	306,445,000	78,758,000	96,139,000
June 26	3,529,600	3,235,000	307,679,000	75,427,000	100,395,000
July 31	3,591,900	3,425,000	308,250,000	70,872,000	108,209,000
August 29	*3,731,450	3,425,000	309,506,000	66,997,000	112,111,000
September 25	3,666,300	*3,455,000	307,974,000	65,620,000	116,472,000
October 2	3,647,450	3,400,000	309,036,000	65,266,000	117,076,000
October 30	3,602,950	3,345,000	307,140,000	66,836,000	121,070,000
November 27	3,425,800	3,325,000	304,156,000	68,544,000	121,616,000
December 4	3,387,000	3,230,000	303,034,000	70,193,000	121,329,000
December 11	3,414,450	3,200,000	303,163,000	70,513,000	120,154,000
December 18	3,439,850	3,220,000	303,041,000	73,288,000	119,919,000
December 25	3,492,600	3,245,000	303,294,000	74,437,000	118,659,000
January 1, 1938	3,436,600	3,320,000	.....	77,291,000	118,660,000
January 8, 1938	3,437,100	3,210,000	.....	79,331,000	119,146,000
January 9, 1937	3,117,800	3,110,000	†288,517,000	65,402,000	105,971,000
Change in past year	+10.2%	+3.2%	+5.1%	+21.3%	+12.4%

* All time peak. † Stocks December 26, 1936.



ly has been running only about 10 percent higher than a year ago. And for January 1938 it was estimated by the Bureau of Mines that gasoline demand would continue 10 percent above the level of a year ago.

These large inventories of gasoline undoubtedly are largely responsible for the continuing weakness of the gasoline market.

However, the gasoline prices at refineries have remained largely unchanged now for several weeks, whereas they previously had been consistently declining since the end of September. This arresting of the downward movement of prices is, of course, an encouraging development.

Price Changes

Price changes lately have been confined primarily to revisions of tank car prices of kerosene and fuel oil.

Standard Oil Company of Indiana, effective January 12, restored normal markets on kerosene, tractor fuel, and furnace oil in Illinois, Indiana, Iowa, Minnesota, Missouri, North Dakota, South Dakota, and Wisconsin. The company made no change in Chicago.

Standard Oil Company of New Jersey has reduced tank car prices for kerosene and for Nos. 1, 2, and 4 fuel oils ⅛-cent a gallon, and has reduced Diesel fuel 10 cents a barrel, at New York harbor and southern points, retroactive to January 1. The company said that the reason for the reduction was the accumulation of stocks, due to mild weather.

Refinery Prices

U. S. motor gasoline ranged in the Oklahoma market last week about as follows: 62 octane and below, 4 to 4¼ cents a gallon; 63 to 66 octane, 4⅜ to 4½ cents; 67 to 69 octane, 4⅝ to 4⅞ cents; and 70 to 72 octane, 4⅞ to 5¼ cents.

Corresponding prices in the Chicago market were as follows: 3¾ to 4¼ cents, 4 to 4½ cents, 4⅜ to 4⅝ cents, and 4½ to 5 cents.

In East Texas the most common gasoline, 60-62, 400 end-point, was priced generally at 4⅛ to 4¼ cents a gallon.

Kerosene prices f.o.b. Oklahoma refineries ranged from 4⅛ to 4⅜ cents a gallon for the 41-43 water white grade, and from 4¼ to 4⅝ cents for the 42-44 water white grade. Corresponding prices in the Chicago market were: 4⅛ to 4⅜ cents and 4¼ to 4⅝ cents.

Fuel oil prices were mostly unchanged. In the Chicago market range oil was priced from 4⅛ to 4½ cents a gallon. The No. 1 white oil was priced from 4⅛ to 4⅜ cents, and the No. 1 straw from 3⅞ to 4⅛ cents. No. 2 straw was 3¾ to 3⅞ cents and No. 2 dark from 3⅝ to 3¾ cents. No. 3 oil was 3½ to 3⅝ cents. No. 4 was $1.05 to $1.10 a barrel to domestic consumers and 95 cents to $1.10 to industrial buyers. No. 5 oils were 80 to 85 cents for domestic and 77½ to 85 cents for industrial sales. The No. 6 oil was quoted to the usual industrial customers at 50 to 55 cents a barrel.

Canadian Fuel Cut

Reflecting an unstable market in California, fuel oil prices in British Columbia last week were dropped 10 cents a barrel. New prices are $1.45 a barrel in Vancouver harbor, $1.50 a barrel at coast points on the mainland and $1.55 at points on the west coast of Vancouver Island. The new scale will only affect quantity purchases, according to S. E. Nord, manager of Standard Oil Company of British Columbia.

CRUDE OIL PRICES

Complete tables of prices paid for crude oil at the well in principal fields is shown on page 46 of the issue of January 3. This schedule will appear only in the first issue of each month.

Summary of Wells Completed in the United States Week Ending January 15, 1938

	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total, 1938	Total this Date, 1937
Alabama	....	....	....	....	.....	....	.....
Akranasas	5	4	....	1	2,602	15	.....
California	13	12	....	1	9,265	46	61
Colroado	....	....	....	....	.....	2	2
Florida	....	....	....	....	.....	....	.....
Illinois	10	4	....	6	413	53	.....
Inidiana	6	1	3	2	5	6	6
Kansas	54	27	9	18	39,491	122	116
Kentucky	10	3	3	4	22	45	31
Louisiana	30	21	2	7	13,882	69	34
Michigan	18	17	1	....	4,608	47	56
Mississippi	....	....	....	....	.....	2	.....
Montana	2	....	....	2	.....	4	6
Nebraska	....	....	....	....	.....	....	.....
New Mexico	11	10	....	1	3,283	30	33
New York	1	....	1	....	.....	3	.....
Ohio	21	7	4	10	117	58	124
Oklahoma	32	20	2	10	1,319	104	178
Pennsylvania	7	....	6	1	.....	14	7
Texas	226	185	4	37	385,515	678	739
Utah	....	....	....	....	.....	....	.....
West Virginia	20	1	16	3	1	57	35
Wyoming	4	2	2	....	1,440	6	6
Total this week	470	314	53	103	461,963	1,361	1,434
Total last week	438	282	44	112	343,448	....	.....
Total this year	1,361	891	137	333	1,122,757	....	.....

Comparison of Permits Granted for New Wells

STATE	Week Ending Jan. 15	Total this Mo.	Total this Year	Total this Date Last Year	1937 Year Total
Arkansas	6	10	10	...	240
California	12	95	95	56	1,584
Louisiana	23	72	72	42	1,227
Kansas	34	86	86	132	2,663
Michigan	7	30	30	29	958
Oklahoma	21	76	76	168	2,711
Texas	353	584	584	703	17,238
Total	456	953	953	1,130	26,621

Production Turns Upward

Increase of 26,340 barrels daily average puts United States output 62,825 barrels above market demand estimate of bureau.

UNITED STATES crude oil production averaged 3,469,625 barrels daily, the past week, which was 26,340 barrels a day more than in the previous week, and 62,825 barrels daily more than the average daily output estimated by the Bureau of Mines as required by the market in January.

The increase over the previous week resulted from gains in Texas, Oklahoma and Kansas, that more than offset slight declines in Louisiana and California.

Texas last week averaged 1,385,200 barrels daily, showing an increase of 4500 barrels, which was 34,300 barrels a day more than the Bureau of Mines estimate. The past week's daily output also exceeded the state allowable 27,627 barrels.

Oklahoma had a gain of 4775 barrels, averaging 543,600 barrels daily, which was 23,000 barrels less than the federal allocation and 6400 barrels less than the state allowable for January.

Kansas likewise showed an increase of 17,550 barrels, the daily output having been 180,200 barrels, which was 900 barrels more than the Bureau of Mines indicated demand, but remained under the state allowable 6272 barrels.

Louisiana last week averaged 249,575 barrels daily, or 3300 less than in the previous week, 11,175 barrels a day more than the Bureau of Mines recommendation and 6425 barrels less than the allowable prescribed by the state.

California output was down 1000 barrels at 709,000 daily, exceeding the indicated demand and the Central Committee of California Oil Producers' recommendation 30,700 barrels a day.

Imports of petroleum for domestic use and receipts in bond at principal United States ports, for the week ended January 8, totaled 821,000 barrels, a daily average of 117,286 barrels, compared with a daily average of 213,571 barrels for the week ended January 1, and 144,893 barrels daily for the 4 weeks ended January 8. These figures include all oil imported, whether bonded or for domestic use, but it is impossible to make the separation in weekly statistics.

Washington, D. C.—Crude runs to stills in November dropped to 99,615,000 barrels, the daily average of 3,321,000 barrels being 67,000 barrels below the October level, although 348,000 barrels above that of November, 1936, it was reported January 12 by the Bureau of Mines.

Receipts of crude at refineries for the month totaled 98,529,000 barrels of which 96,104,000 barrels were domestic and 2,425,000 barrels foreign, the daily average of foreign receipts of 81,000 barrels being an increase of 2000 barrels over the previous month. Fuel and losses were 136,000 barrels.

United States Crude Oil Production

Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE—	Bureau of Mines Recommendation (Daily in Jan.)	State Allowable in January	BARRELS DAILY FOR WEEK ENDED January 15	BARRELS DAILY FOR WEEK ENDED January 8
TEXAS—				
Texas Panhandle	.....	.....	70,100	71,600
North Texas	.....	.....	73,200	72,800
West Central Texas	.....	.....	32,600	33,100
West Texas	.....	.....	198,100	193,200
East Central Texas	.....	.....	86,200	86,200
East Texas Field	.....	.....	493,100	492,100
South Texas	.....	.....	238,400	236,400
Texas Gulf Coast	.....	.....	193,500	195,300
Total Texas	1,350,900	1,357,573	1,385,200	1,380,700
CALIFORNIA—				
Long Beach	.....	.....	57,500	58,000
Santa Fe Springs	.....	.....	40,500	40,500
Huntington Beach	.....	.....	36,000	35,500
Dominguez	.....	.....	30,000	30,000
Inglewood	.....	.....	16,500	16,000
Ventura Avenue	.....	.....	35,500	38,000
Seal Beach	.....	.....	9,000	9,200
Midway-Sunset	.....	.....	77,000	78,500
Elwood	.....	.....	8,000	7,500
Kettleman Hills	.....	.....	81,000	80,000
Mountain View	.....	.....	14,500	15,000
Playa del Rey	.....	.....	7,500	7,500
Wilmington	.....	.....	62,000	62,500
Others	.....	.....	234,000	231,800
Total California	678,300	*678,300	709,000	710,000
OKLAHOMA—				
Oklahoma City	.....	.....	121,950	120,975
Seminole Area	.....	.....	94,575	104,775
Crescent	.....	.....	7,750	8,025
Lucien	.....	.....	11,250	11,300
Fitts	.....	.....	73,925	68,850
Edmond	.....	.....	8,900	9,200
Moore	.....	.....	9,500	9,300
Others	.....	.....	215,750	206,400
Total Oklahoma	566,600	550,000	543,600	538,825
LOUISIANA—				
North Louisiana	.....	.....	79,475	78,375
South Louisiana	.....	.....	170,100	174,500
Total Louisiana	238,400	256,000	249,575	252,875
KANSAS—				
Ritz-Canton	.....	.....	5,100	5,100
Chase	.....	.....	5,200	4,550
Hollow-Nikkel	.....	.....	2,300	2,325
Sedgwick	.....	.....	3,275	3,425
Burrton-Haven	.....	.....	10,100	10,225
Lorraine	.....	.....	2,775	2,425
Russell County	.....	.....	33,300	28,476
Silica—West	.....	.....	16,100	9,875
Silica—South	.....	.....	3,400	.....
Others	.....	.....	98,650	96,250
Total Kansas	179,300	186,472	180,200	162,650
NEW MEXICO	103,100	107,100	107,100	107,100
MICHIGAN	54,100	.....	51,500	49,600
ARKANSAS	35,200	.....	41,050	42,525
MOUNTAIN STATES—				
Wyoming	55,500	.....	46,100	48,700
Montana	13,100	.....	14,100	13,700
Colorado	4,300	.....	4,400	4,400
Total Rocky Mountain States	72,900	.....	64,600	66,800
EASTERN STATES—				
Pennsylvania Grade	.....	.....	80,500	76,800
Southern Illinois (New Pools)	.....	.....	25,300	24,100
Illinois-Indiana (Old Pools)	.....	.....	10,500	10,200
Others, Eastern	.....	.....	21,500	21,100
Total Eastern States	128,000	.....	137,800	132,200
Total United States	3,406,800	.....	3,469,625	3,443,275

* Recommendation of Central Committee of California Oil Producers.

November Operations Reduce Crude Stocks, Gasoline Up

COUCHING the lowest point since February, 1937, domestic crude oil production in November dropped to 104,206,000 barrels, a loss of 6,705,000 barrels from the October output of 110,911,000 barrels but approximately 13,200,000 barrels above the November, 1936, total of 91,018,000 barrels, according to the monthly report of the Bureau of Mines, released January 11.

Daily average production for the month was 3,473,500 barrels, 104,300 barrels below the October level and 239,100 barrels above the 1937 high of 3,712,600 barrels recorded in August, since which month production has been declining steadily. The daily average in November was the lowest since March, 1937.

"Trends in production by states in November were much the same as in October," the bureau commented in its report. "California's average again increased, this time to just above the 700,000-barrel mark. The daily averages for Arkansas, Illinois and Michigan, all of which at that time were experiencing active development, also increased in November. The Sunday shutdowns in East Texas, two of which fell in November, were reflected in the daily average output of the field, which fell from 486,700 barrels in October to 459,500 barrels in November. The major portion of the national decline took place in Texas, although decreases were also registered in Oklahoma, Louisiana and Kansas."

The drop in national daily average production, it was pointed out, was the second successive decline of about 1000 barrels.

Crude runs also showed a marked decline in November, though not as much as production so that more oil was taken from stocks, the withdrawal from refinable crude stocks for the month being 2,725,000 barrels, or more than double the October withdrawals.

As expected, the bureau reported, the yield of gasoline declined in November, the average of 44 percent being 0.6 percent under October, but the decline in yield was more than offset by a gain in the yield of domestic heating oils.

The indicated domestic demand for motor fuel in November was 42,666,000 barrels, or 7 percent above the final figure for the same month in 1936. Exports of motor fuel were 3,309,000 barrels, considerably below the October figure but materially higher than exports in the corresponding month in 1936. Stocks of gasoline were increased by 2,591,000 barrels, reaching a total of 70,628,000 barrels November 30, and, the bureau pointed out, "though the increase was less than in October, probably for the first time in history, the total at the end of the month was about 12,000,000 barrels above the corresponding figure of the previous year."

On the basis of figures for the first 11 months, total crude production for the calendar year 1937 is expected to be about 160,000,000 barrels above that of 1936.

Details of supply and demand in November as compared with the preceding month are given in the accompanying table, prepared by the bureau.

Supply and Demand of All Oils

(Thousands of barrels of 42 gallons)

	Nov., 1937	October, 1937	Nov., 1936	January-November 1937	January-November 1936
New Supply:					
Domestic production:					
Crude petroleum	104,206	110,911	91,018	1,171,074	1,000,864
Daily average	3,474	3,578	3,034	3,056	2,988
Natural gasoline	4,217	4,418	3,816	44,245	38,076
Benzol[1]	178	229	228	2,635	2,291
Total production	108,601	115,558	95,062	1,217,954	1,041,231
Daily average	3,620	3,728	3,169	3,647	3,108
Imports:[2]					
Crude petroleum:					
Receipts in bond	147	145	316	1.774	2,262
Receipts for domestic use	2,278	2,290	2,440	23,318	27.451
Refined products:					
Receipts in bond	1,378	1,530	1,589	20,643	16,893
Receipts for domestic use	279	548	376	6,810	5,492
Total new supply, all oils	112,683	120,071	99,783	1,270,499	1,093,329
Daily average	3,756	3,873	3,326	3,804	3,264
Increase in stocks, all oils	[3]1,470	3,488	[3]5,158	43,021	[3]19,427
Demand:					
Total demand	114,153	116,583	104,941	1,227,478	1,112,756
Daily average	3.805	3,761	3,498	3.675	3,322
Exports:					
Crude petroleum	6,645	6,692	4,145	62,170	46,518
Refined products	9,814	9,457	7,941	98,094	73,326
Domestic demand:					
Motor fuel	42,666	45,361	39,919	479,303	442,198
Kerosene	5,705	4,985	4,943	48,531	45,331
Gas oil and distillate fuels	11,639	9,957	11,131	101,549	89,302
Residual fuel oils	26,057	26,847	24,892	296,801	277,197
Lubricants	2,037	1,972	1,938	21,885	20,855
Wax	78	83	79	967	974
Coke	347	706	512	5,259	5,711
Asphalt	1,507	2,268	1,689	22,120	21,104
Road oil	276	526	308	7,846	7,440
Still gas	4,876	5,250	4,437	56,424	49,844
Miscellaneous	142	193	161	2,091	2,058
Losses	2.364	2,286	2,846	24,438	30,898
Total domestic demand	97,694	100,434	92,855	1,067,214	992,912
Daily average	3,256	3,240	3,095	3,195	2,964
Stocks:					
Crude petroleum	305,747	308,472	288,998	305,747	288,998
Natural gasoline	5,147	5.444	4,153	5,147	4,153
Refined products	250,773	249,221	229,122	250,773	229.122
Total, all oils	561,667	563,137	522,273	561,667	522,273
Day's supply	148	150	149	153	157

[1] From Coal Division. [2] Imports of crude as reported to Bureau of Mines; all other imports and exports, from Bureau of Foreign and Domestic Commerce. [3] Decrease.

Two hotels to accommodate Institute's mid-year meeting

Sessions of the eighth mid-year meeting of the American Petroleum Institute, scheduled for May 23, 24 and 25, 1938, at Wichita, Kansas, will be held both in the Allis and Lassen Hotels, according to tentative plans.

The Institute's Board of Directors and Division of Production will meet in the Alis Hotel, where Institute headquarters, Division of Production headquarters, and main registration desk also will be located. Meetings of the Division of Refining will be held in the Lassen Hotel, where a branch registration desk will be located. Special meetings of committees of the divisions will be held in the hotel in which divisional sessions are scheduled.

The mid-year meeting date immediately follows the cosing date of the International Petroleum Exposition at Tulsa, Oklahoma, and special arrangements are being made by transportation agencies to carry oil men direct from the Exposition to Wichita.

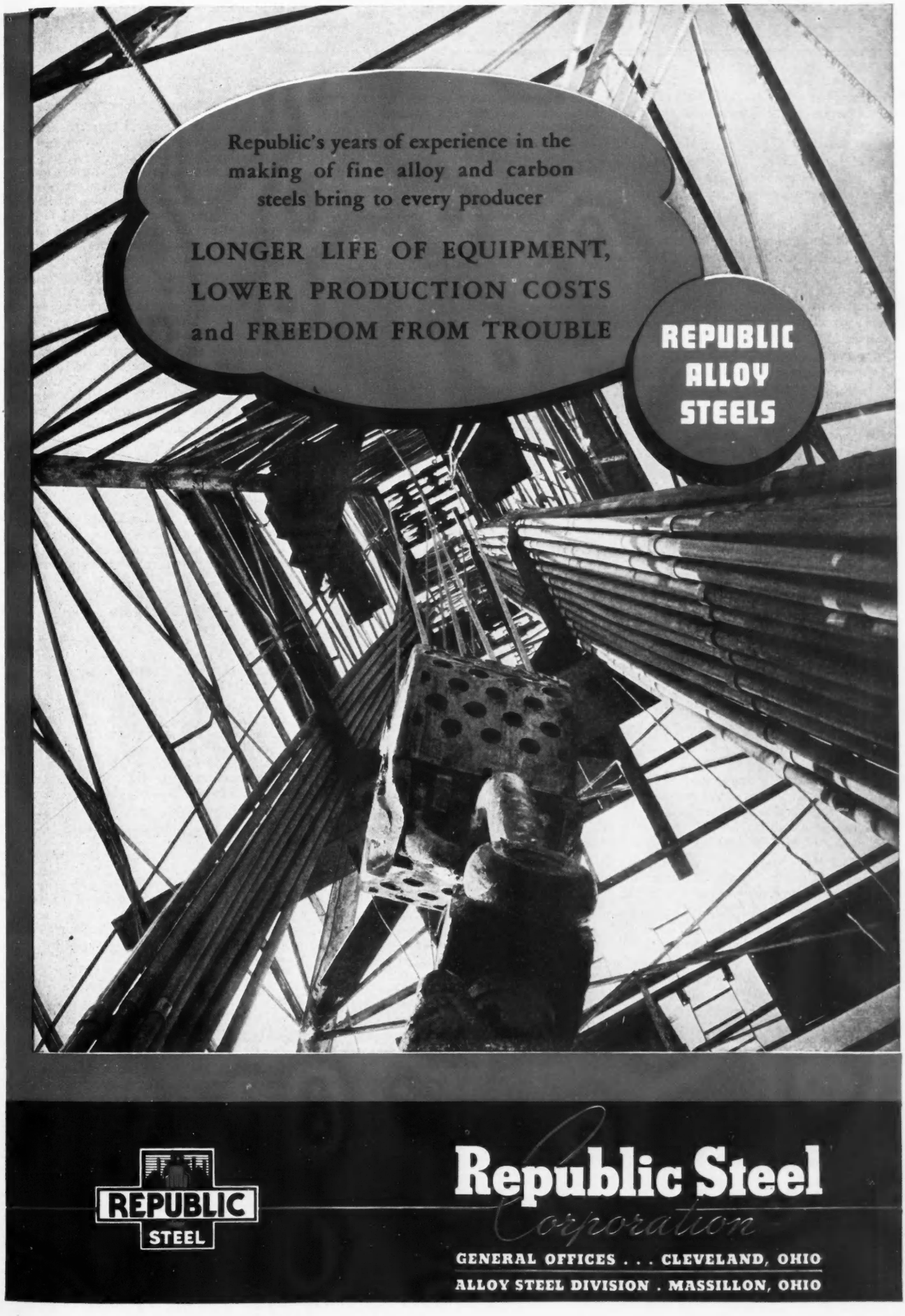
Reservations for individual accommodations now are being made by Wichita hotels.

Barnsdall buys Greta Company and properties

Tulsa.—Barnsdall Oil Company has purchased all stock of Greta Oil Corporation of Houston, which will be dissolved. The transaction involved 952 acres in the Greta field, Refugio County, with 17 oil wells, 1 distillate well and 1 gas well; a full interest in 80 acres and half interest in 155 acres in the Saxet field, Nueces County, with 12 producing wells, as well as wildcat acreage in Texas and Louisiana. Net production of the properties at Greta and Saxet is 1500 barrels daily.

The production will be turned to the new pipe line from the Placedo field to Corpus Christi, where Barnsdall Refining Company has recently started operating its refining plant.

The transaction involved $2,250,000.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[*Continued from page 12*]

breaking out between Alberta and Montana operators. A surplus of crude in the Kevin and Cut Bank fields was reported, caused largely by the action of several large Canadian buyers switching from Montana to Turner Valley crude. Distress prices on the United States side of the International boundary were reported as low as 65 cents a barrel for crude of about 29 to 30 gravity. A 22-cent reduction in the price of Turner Valley crude, made a week ago, brings the Canadian price to $1.26 a barrel for average crude of 46 gravity. Recovery from the two grades is reported at about 50 and 75 percent, respectively.

The price reduction, made by Imperial Oil Company, Ltd., and blamed on the Montana price structure, was not taken graciously by the majority of Alberta producers. Walter S. Campbell, president of the Oil Producers Association, and a leading figure in obtaining the forthcoming tariff board inquiry, declared that "so far it is only 'reported' that there are distress prices in Montana but no evidence has been given yet as to shipments or prices paid for oil."

Commenting on the protests of prarie provinces adjoining Alberta, Campbell said he "cannot conceive of any province in Canada protesting anything that would hinder or curtail development of the Canadian oil industry, so long as the price to the consumer is not increased. The consumer's interests must be kept paramount at all times.

"There are ways of overcoming the Montana situation so that the people of Canada can get the same results, whether the duty is increased or not," Campbell maintained. "When all the facts are ascertained, there won't be any trouble coming to a satisfactory conclusion. I think it is better to have orderly control of Montana importation, rather than have, say 2000 barrels cut the price of 20,000 barrels.

"In consideration of this question, it must be remembered that there is bound to be a certain amount of oil come into Canada for asphalt purposes and, therefore, it is most important that there should be orderly control. It is also worthy of mention that the larger companies will have ample opportunity to justify their actions before the tariff board, as all these matters will be brought up for consideration and dission, and anything and everything that has been done can be threshed out on that occasion to the satisfaction of all."

Texas Fieds Increased

The Texas Railroad Commission has increased the allowable for the Sugarland field, Fort Bend County, to 3550 barrels daily, a gain of 1700 barrels.

An order has been issued raising the allowable for the Bennett field in Yoakum County to 500 barrels daily. This order was retroactive to December 18, and increases the allowance 200 barrels a day.

An order increasing the allowable of the Sam Fordyce field to 4156 barrels daily has been issued by the Texas Railroad Commission. The new order, effective January 7, is to be substituted for that previously effective which allowed production of 3577 barrels daily.

An increase of 1090 barrels in the daily allowable for the Luby field in Nueces County to 1900 barrels per day was ordered by the Texas Railroad Commission last week.

This order, effective January 11, raises the per well allowable from 54 to 100 barrels.

An increase of 100 barrels in the allowable for the Bennett field, Yoakum County, has been ordered by the Texas Railroad Commission. The new order, effective January 10, will allow a production of 600 barrels daily.

Gas/Oil Ratio Tests

To correct gas/oil ratio allowances in those fields operating under a total displacement factor, the Texas Railroad Commission has ordered new potential tests on all wells so classified.

The tests are to be completed within the next 30 days.

"It is further ordered that, effective February 1, 1938, all gas/oil ratio test forms (G-O-2) with the information requested thereon filled in, shall be filed in the district office of the Railroad Commission not later than five days after the gas/oil ratio is determined and, should the operator fail to file G-O-2 test form in an acceptable manner within five days as specified, then the effective date of the allowable resulting from such test shall not extend back more than five days prior to receipt and acceptance of the G-O-2 test form in the office of the Deputy Supervisor. This five-day provision shall govern regardless of whether the gas/oil ratio test is taken during the month in which it is received in the office of the Deputy Supervisor or any prior month. These provisions shall govern the filing of all G-O-2 test forms on all new wells and wells retested for gas/oil ratio which are retested subsequent to the last general survey of the field in which such wells are located. They shall also apply to all G-O-2 forms filed in the interim between any two general gas/oil ratio surveys ordered by the Commission and to all G-O-2 forms filed, except where these forms are ordered to accompany statewide E-B reports for any particular month.

In order to correct gas/oil ratio allowances in several West Texas fields, the commission has scheduled a hearing to be held at Midland on February 7.

Reports from the area have indicated that gas/oil ratios have mounted steadily and the commission engineers asked that the hearing be held in order to determine the cause of this change.

The following pools were included: South Cowden, North Cowden, Emperor, Estes, Fuhrman field, Goldsmith field, Henderson field, Kermit field, Keystone field, Means field, Penwell field, Sand Hills field, Waddell field, North Ward, South Ward, Wasson field, Scarbrough field.

Separate Jefferson

The Texas Railroad Commission Friday heard testimony on the plan to declare the Jefferson area separate from Rodessa for issuance of separate rules and regulations as well as allowable. All the morning session was devoted to hearing testimony by David J. Flesh, one of the operators who completed the discovery well near Jefferson in the R. Bennington Survey.

Flesh testified that the two producing horizons at Jefferson, the Henderson and Gloyd, had no connection with producing horizons in Cass County, Texas, end of Rodessa, pointing out that porosity and permeability of horizons northeast from the Lodi producing between it and Cass County are slight although three wells drilled in that area made small amounts of oil.

The Dees and Young horizons, productive in Cass County, do not appear in Marion County, although one test in Marion found the Dees which was below the water level. The same test failed to pick up the Young.

He pointed to difference in water levels in Cass and Marion counties. In Cass he said it was sub-sea depth of 5780 feet and in Marion, sub-sea 5815 feet.

Those to testify during the afternoon included H. K. Shearer, geologist of The Hunter Company, R. O. Garrett, Arkansas-Louisiana Gas Company, and R. C. Briggs, Fohs Oil Company. These three companies having production in Marion County.

Chairman C. V. Terrell at the opening of the hearing told operators that railroad commission engineers have not completed their data on the field but that the commission would hear operator's testimony which will be studied with engineer's data and a decision announced later.

Other Texas Matters

A hearing to fix proper rules for operating wells in the 3000-foot sand of the Sam Fordyce field, Hidalgo and Starr counties, is scheduled to follow the statewide hearing, to be held in Austin on January 17. The commission is especially interested in spacing regulations for this sand.

In order to relieve pressure around two wild wells in the La Blanca field, Hidalgo County, the Texas Railroad Commission has issued an order permitting other gas wells in the field to produce as much as 25 percent of their potentials.

All gas wells in the field have been closed in because they had no market, but the commission thought that the reduced pressures might enable operators to bring wild wells under control.

An order permitting the return of salt water to the Nacatoch sand in the Talco field, Titus and Franklin counties, was promulgated by the Texas Railroad Commission last week. Wells used for this purpose must have casing set no higher than the Nacatoch horizon and must be cemented to the surface.

At a hearing on November 18, the commission received evidence which showed

that the saline content of water in the Nacatoch sand is higher than that from the Paluxy horizon and that the injection program was practical.

Rules for operating in the Bennett field, Yoakum County, issued by the Texas Railroad Commission last week, provide for the drilling of one well to 20 acres; however, the wells may be located 330 feet from lease lines or 770 feet apart in order that a second location may be drilled on any unit whenever that becomes necessary.

The allowable, however, is based on 20-acre units, and half the allowable is assigned on this basis.

"The daily average potential well production of each proration unit shall be the daily potential production of the unit divided by the number of wells producing oil therefrom."

Potential tests are to be taken for 12 hours and the last 6 hours used to determine the 24 hour potential.

The casing program requires 200 feet of surface casing cemented to the surface and an oil string set so as to case off all free gas horizons and cemented with a minimum of 100 sacks of cement.

Marland presents data on pending oil shortage

Oklahoma City.—Governor E. W. Marland announced January 12 he was ready for the conference of governors of oil producing states, scheduled to be held at Hot Springs, Arkansas, late this month. Although no word had been received from an invitation sent President Roosevelt for national government representatives to attend, Marland said eight heads of oil producing states other than Oklahoma and Kansas had signified they would attend or be represented at the meeting.

Purpose of the conference is to study the price situation with a view to enabling companies to continue exploratory drilling. The governor stated statistics compiled for the meeting by Alex W. McCoy, Ponca City geologist and petroleum engineer, made it apparent to him that production from new pools was falling off and that proved reserves were inadequate to supply demands beyond 1941. McCoy will accompany Marland to the meeting where he will explain and discuss the information.

Michigan natural gas flow under utilities commission

Deputy Attorney General John H. Brennan on January 11 ruled that the Michigan public utilities commission retained its authority to control natural gas production in that state, thereby settling a jurisdictional question raging between that commission and the state conservation department since the 1937 legislature created within the conservation department a "supervisor of gas wells." The legislature failed to pass a companion bill which would have taken away the utilities commission's authority over gas production.

The attorney general's department ruled that overlapping duties caused by the original 1929 law and the 1937 act "should be adjusted between the two departments in favor of the public utilities commission, the original administrative agency in the field of natural gas."

Propose test to 9000 feet in Bethany gas district

Shreveport.—Under the terms of a lease filed for record here last week, The Texas Company must start a 9000-foot, lower Marine test in the Bethany district, Panola County, Texas, and Caddo Parish, Louisiana, by February 1. The location will be somewhere on the Texas side of a 2282-acre block conveyed to the company by Claude Adams. This deep test has been rumored for several months and a location for it was at one time carried on some drilling reports.

Bethany is productive from several shallow horizons, mostly producing gas, and also from the upper Glen Rose lime. Deepest test drilled in the area was United Gas Public Service's Werner 11, D. B. Lewis Survey, which was drilled to 5860 feet in the Travis Peak without getting production. Basal Glen Rose lime at 5575 feet was also dry.

Magnolia Petroleum Company which recently completed the second of two Travis Peak gas wells on the E. A. Hull tract, Thomas Applewhite Survey, contemplates no more tests immediately there and the rig has been moved elsewhere. The latter of the two tests went to 8718 feet into the lower Marine but showed nothing of particular promise in that latter horizon.

Shell Petroleum Corporation has completed a series of core hole tests in the northeast part of Sabine County, Texas.

LEON F. RUSS, president of Russ Petroleum Company, Inc., Dallas, has announced the transfer of the company's properties and assets to the Southwood Oil Company, Inc., formed January 1 with a Delaware charter. The latter assumes all obligations and liabilities, and no change is involved in ownership or management. Other officers are: J. R. Munoz of New York, vice president; W. M. Maule of New York, secretary-treasurer; and B. B. McBride of Dallas, assistant secretary-treasurer. Producing properties are held in East and Southwest Texas.

MARVIN LEE, long the technical adviser of the Kansas Corporation Commission, has resigned effective February 1, and will do consulting work in Wichita. Lee is considered one of the best informed men on Kansas oil field conditions.

ED. DOWNING, Crane district, West Texas, petroleum engineer for Magnolia Petroleum Company, has been transferred to Sinton, Texas, to take charge of the Sinton-Laredo district, and will be succeeded at Crane by Harve H. Mayfield.

DR. J. BRYAN EBY, consulting geophysicist, was speaker at the regularly weekly luncheon of the Houston Geological Society on January 13. Dr. Eby's subject was "Relation of Petroleum Exploration and Discovery to Reserves."

TUCKER ROYALL, 60, former chairman of the Railroad Commission's tender board in the East Texas field, died January 13 in a Dallas hospital after being stricken 10 days previous with pneumonia. Royall helped organize and headed the tender board in June, 1934, while engaged as a banker at Palestine. He retired from the board November 1, 1935, and later moved to Dallas, where he became board chairman of the First National Bank in Dallas.

Texas reports November production was down

November production for the State of Texas totalled 40,256,537 barrels, according to a report released last week by V. E. Cottingham, director of production for the Texas Railroad Commission. This was an average of 1,337,493 barrels per day as compared with October production, which averaged 1,429,605 barrels daily. Thus the total production for November was 4,192,982 barrels below October production.

There were a total of 77,865 wells producing during the month, of which 30,689 were flowing. Lease storage decreased 56,022 barrels to 4,586,652 barrels.

Receipts by pipe line companies totalled 40,115,105 barrels for the month. There were 30,288 barrels moved in tank cars, 136,294 barrels moved by truck, 30,671 barrels used as fuel and 29,393 barrels disposed of for miscellaneous purposes.

Shreveport.—Petroleum Heat and Power Company has made location for four additional Tokio tests around its Kavanaugh 1, Section 7-11n-11w, De-Soto Parish, on the south end of the Bull-Bayou-Naborton field. Kavanaugh 1 was recently completed at 2845 feet for 105-barrel daily producer, the first well in that part of the field in some time.

Anadarko, Okla.—The Kiowa Indian agency will open sealed bids on 225 tracts of Indian lands in 5 counties February 3, beginning at 10:00 a. m. A total of 28,488.15 acres are included in the sale. Counties include Cotton, Tillman, Grady, Caddo and Kiowa.

Pawhuska, Okla.—Osage oil leases covering 50,399.57 acres in 243 tracts will be offered at public auction here January 26, beginning at 9:30 a. m., in the Osage auditorium on the agency campus.

Natural gasoline output declines in November

Natural gasoline production in November reflected conditions existing throughout the oil industry, declining to 177,114,000 gallons from 185,556,000 gallons in October, it was reported by the Bureau of Mines January 11.

Daily average production for the month was 5,904,000 gallons as compared with 5,986,000 gallons in October, but nevertheless was 562,000 gallons, or 10 percent above the average for November, 1936, it was stated.

Largest decreases were noted in the East Texas, Seminole and Oklahoma City districts.

Stocks at refineries and plants and terminals dropped by 12,474,000 gallons during the month, those at refineries decreased from 119,364,000 to 112,140,000 gallons and those at plants and terminals from 109,284,000 to 104,034,000 gallons, the report showed.

WORLD DEVELOPMENT and TECHNOLOGY

Edited by
WM. V. GROSS, Associate Editor

Exploitation of Oil In Mexico in 1937

By ING. JOSE D. BAEZ
Chief, Department of Petroleum of Mexico

NOTWITHSTANDING the various conflicts in regard to labor, which affected the oil industry during 1937, a notable increase in exploitation activity has been made to the extent that crude production has increased and also an increase is noted in the production of refined oil, also in domestic consumption, which has surpassed all of the preceding years, reaching for the first time a figure which will surely pass 3,180,000 cubic meters (20,000,000 barrels).

Up to and including November 40 wells had been completed, of which the majority, or 25, were productive, with an initial production capacity of 1401 cubic meters daily (8813 barrels). The number of authorizations for the drilling of wells had reached 172 up to November 30, which exceeds the total number of authorizations issued in 1935 and 1936.

The following table shows the productive wells obtained in each of the Mexican fields during the first 11 months of 1937:

Fields	No. of wells	Initial daily capacity barrels	Daily average of capacity per well barrels
Laredo (Tamps.)	1	Gas	
Mier (Tamps.)	2	Gas	
Camargo (Tamps.)	2	Gas	
Altamira (Tamps.)	2	164	82
Cacalilao (Panuco)	1	13	13
Panuco (Diversos)	5	590	120
Quiebrahacha (Topila)	1	145	145
Rancho Abajo (Tantina)	1	201	201
Acalapa (Istmo)	2	1,667	837
Choapas (Istmo)	1	315	315
El Plan (Istmo)	5	5,649	1,132
Santa Rosa (Istmo)	1	50	50
Jalpa (Tabasco)	1	19	19
	25	8,813	Av. 352

Of the producers, five were gas wells with total capacity of 1,232,000 cubic meters daily.

Our production of crude in the first eleven months reached 6,765,846 cubic meters or 42,557,163 barrels, and in all probability the total at the end of the year will exceed 7,314,000 cubic meters (more than 46,000,000 barrels), which accounts for an increase of a little more than 790,000 cubic meters, (more than 5,000,000 barrels), over and above what was produced in 1936; therefore a progressive increase has been shown in our production since the second half of 1932.

The wells competed in the same period classified by months are the following:

Months	No. of wells	Initial production barrels	No. of abandoned wells	Total No. of completed wells
January	4	3,227	1	5
February	2	566	2	4
March	.	...	.	.
April	.	...	.	.
May	1	38	3	4
June	2	352	1	3
July	2	315	1	3
August	3	107	1	4
September	2	1,151	4	6
October	4	2,541	1	5
November	5	516	1	6
	25	8,813	15	40

In this manner Mexico continues to occupy firmly the seventh place among the principal oil production countries of the world, the first place corresponding to the United States of North America, second place to Russia, third to Venezuela, fourth to Rumania, fifth to Iran (Persia); sixth to the Dutch East Indies. After Mexico there follows in decreasing order: Iraq, Colombia, Peru, Argentina, etc. Up to November 30, 1937, Mexico had produced in total since the starting of our production on an industrial scale in 1901, a total of 295,897,234 cubic meters (1,861,259,595 barrels).

The production of Mexican crude petroleum in the last five years has been the following:

Years	Cubic meters	Barrels
1933	5,405,537	34,000,830
1934	6,068,672	38,171,946
1935	6,397,546	40,240,563
1936	6,522,721	41,027,915
1937 estimated	7,314,000	46,000,000

We should make special reference to the notable field of Poza Rica situated in the Papantla region in the northern part of the State of Veracruz, which with the adjacent properties will be exploited in a unified form and by the most efficient medium by Compania Mexicana de Petroleo, "El Aguila," S. A., and by the General Administration of the National Petroleum in accordance with the agreement between said company, "El Aguila" (Dutch-Shell interests) and the Federal government.

According to the agreement referred to, minimum program of work will be the following: El Aguila will drill around 100 wells in which the nation will have a participation. The nation will drill 44 wells, which will correspond to the total of its production. El Aguila is obligated to maintain in the zone referred to in the agreement five drilling rigs constantly working. The government will maintain as a minimum the same number of drilling rigs as that of the company.

Poza Rica Reserve

Various estimates, although none of them official, have been made regarding the probable reserves of this field, there being naturally great discrepancies between the various estimates. Nevertheless competent authorities are in accord in considering this field of such importance that it would not be difficult for it to reach such importance as to compete with the famous Faja de Oro (Golden Lane). The engineer and geologist, Ezequiel Ordonez, competent authority for the oil companies, stated in his report of July, 1937, that the probable reserves of the field of Poza Rica could be calculated at 500,000,000 barrels.

As an important index of the development possibility which the oil companies have before them, we would say that of a total of 7,567,015 hectares (18,698,094 acres) of oil lands they have in concession they have only exploited up to the present time a total of 100,000 hectares (247,100 acres) and they have lands for development approximately 75 times greater than what they have already exploited.

Our production of refined oil will reach a total in 1936 of a little more than 6,400,000 cubic meters (40,256,000 barrels) against 6,173,408 cubic meters (38,830,736 barrels) produced in 1936.

The following table shows the production of refined oil in the last five years:

Years	Cubic Meters	Barrels
1933	4,671,673	29,384,823
1934	5,934,998	37,331,137
1935	5,703,511	35,875,084
1936	6,173,408	38,830,736
1937 estimated	6,400,000	40,256,000

Our exportation will possibly reach in the 12 months a total of around

The Pennington Signaling Core Barrel

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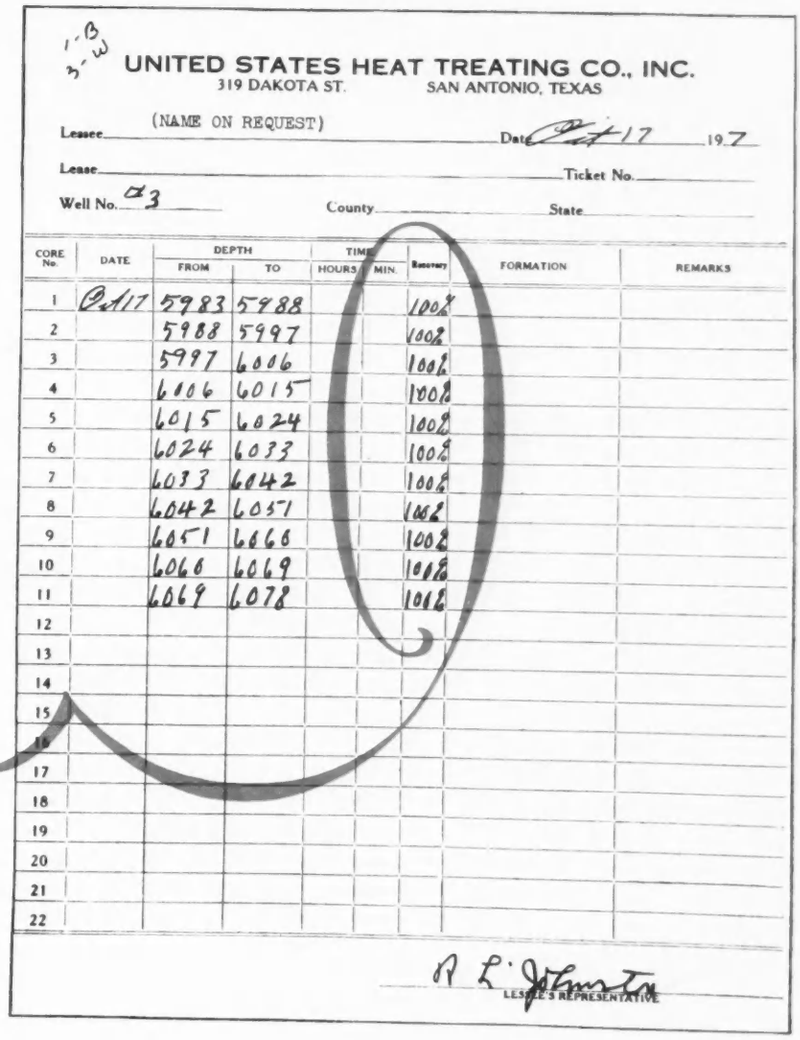

1-B
3-W

UNITED STATES HEAT TREATING CO., INC.
319 DAKOTA ST. SAN ANTONIO, TEXAS

Lessee (NAME ON REQUEST) Date Oct 17 19 37

Lease Ticket No.

Well No. #3 County State

CORE No.	DATE	DEPTH FROM	DEPTH TO	TIME HOURS	TIME MIN.	Recovery	FORMATION	REMARKS
1	Oct 17	5983	5988			100%		
2		5988	5997			100%		
3		5997	6006			100%		
4		6006	6015			100%		
5		6015	6024			100%		
6		6024	6033			100%		
7		6033	6042			100%		
8		6042	6051			100%		
9		6051	6060			100%		
10		6060	6069			100%		
11		6069	6078			100%		
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A L. Johnston
LESSEE'S REPRESENTATIVE

This Hastings, Texas field record is merely one of the many examples of outstanding recovery of this revolutionary Core Barrel.

The above core record, showing full 100% core recovery in high pressure oil and gas producing zones, is reproduced with permission of Harry L. Edwards Drilling Company, Second National Bank Building, Houston, Texas, who drilled the above well in the Hastings Field.

PENNINGTON SIGNALING CORE BARREL
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San Antonio, Texas

3,650,000 cubic meters (23,000,000 barrels) of crude and refined oil.

The following shows what Mexico exported in the last five years:

Years	Cubic Meters	Barrels
1933	3,501,768	22,026,121
1934	3,977,453	25,018,181
1935	3,568,517	22,445,972
1936	3,982,632	25,050,754
1937 (Probable)	3,650,000	23,000,000

In regard to our local consumption as we indicated above, it will no doubt exceed 3,180,000 cubic meters (more than 20,000,000 barrels), which is very significant, since it is a direct manifestation of the material progress which Mexico has been making. By this consumption Mexico occupies the tenth place among all of the countries in which oil is the basic element for its prosperity and well-being. It is possible that at the end of the year we will occupy with advantage the ninth place which up to the present time has been held by Italy.

In decreasing order the United States occupies first place, with an annual consumption which exceeds 159,000,000 cubic meters (1,000,000,000 barrels), the second corresponds to Russia, the third to England, the fourth to France, the fifth to Canada, the sixth to Germany, the seventh to Japan, the eighth to Argentina, the ninth to Italy and the tenth to Mexico. Our consumption exceeds that of Rumania, Austria, Holland, Switzerland, Chile, Brazil, etc.

The following ciphers show the petroleum products consumed by Mexico in the last five years:

Years	Cubic Meters	Barrels
1933	2,132,921	13,416,073
1934	2,585,977	16,265,795
1935	2,856,417	17,966,863
1936	2,901,886	18,252,863
1937 estimated	3,180,000	20,000,000

In our consumption gasoline occupies an attractive place. It has been growing rapidly since 1925, and during 1937 it will possibly reach a total of 500,000,000 liters, against 424,618,278 liters consumed in 1936. This resulted from the Mexican government road program, construction of extensive and important branches of highways and improvement and conservation of those already existing.

In the same last five years, to which we have referred, the consumption of gasoline in Mexico has been doubled as is shown by the following ciphers:

Years	Liters
1933	260,035,302
1934	313,120,740
1935	354,550,999
1936	424,618,278
1937 estimated	500,000,000

It will be noted that 1937 shows ciphers more favorable than the previous year, which has exceeded all of the previous years.

There are not sufficient definite indications to predict with certain approximation what will be the course followed by the various factors affecting the petroleum industry in the next year. But at present it can be estimated that domestic consumption will continue increasing on a greater scale. Therefore the industry can depend on a favorable increasing demand in the local markets.

It would appear certain that the production and consumption of Mexican petroleum products in 1938 will exceed the very favorable ciphers reached during 1937.

Canadian Record Flow

Turner Valley well flows 6000 barrels following acid treatment

CANADIAN oil records were broken last week when acidization of Commoil, Ltd.'s 1, Legal Subdivision 15, Section 29, Township 18, 2-w5, in the Turner Valley field of Alberta brought a flush yield of 6000 barrels a day, compared to 4500 barrels for Davies Petroleums, Ltd.'s 2, until now the largest Canadian producer. The 7500-gallon treatment boosted gas flow from 1,500,000 cubic feet a day to from 10,000,000 to 12,000,000 cubic feet. A five-day test was underway by Provincial officials as the week closed to determine the well's potential. The yield during the fourth 24-hour period was 3351 barrels, indicating the well will be slightly larger than Davies Petroleums' 2, which is producing under a potential set at 3000 barrels after a 3-day test. Like other Turner Valley producers, the test will be choked to 35 percent of potential under a proration order issued by buying companies because of limited carrying and marketing facilities.

Commoil, Ltd.'s 1 was spudded late in March, 1937, and officially completed October 26, 1937, with a potential rating of 1301 barrels. Total depth is 7475 feet. It is on the north half of an 80-acre tract on the westerly flank of the south end of the Valley, a half-mile west and slightly north of Turner Valley Royalties, crude discovery which was brought in June 16, 1936. Since completion of the crude discovery, 27 wells with a total potential in excess of 30,000 barrels daily have been completed. Commoil will drill No. 2 on the south half of its 80-acre tract, or on Legal Subdivision 10.

Davies Petroleums, Ltd.'s 1, Legal Subdivision 2, Section 28, Township 18, 2-w5, encountered the Cardium at 4625 and was drilling at 4920 feet as the week closed. No. 3 was awaiting completion of a 3½-mile gas line to location, Legal Subdivision 7, Section 33, Township 17, 2-w5, which was to make fuel available for drilling operations. Operators expected to spud early this week. Just a half-mile north of Commoil's 1, the company last week secured a site for No. 4 from British Trans-Canada Oils, Ltd. The agreement calls for spudding not later than April 15 and location is Legal Subdivision 10, Section 32, Township 18, 2-w5. The site is considered one of the most promising in the Valley. Maynard J. Davies, president, announced that rotary from No. 1 would be moved to No. 4 just as soon as the drilling test is completed.

Will Drill 14 Wells

Okalta Oils, Ltd., announced that arrangements have been completed for drilling 14 new wells on the company's acreage this year. Of this number, two are already drilling—Spy Hill Royalties, Ltd. on Legal Subdivision 16, Section 20, Township 18, 2-w5, now at 6323 feet, and United Oils, Ltd.'s 5, on Legal Subdivision 1 of that section, now drilling at 2302 feet. Derrick is up for York Oils, Ltd.'s 1, on Legal Subdivision 2, while cellars have been dug for Inter City Royalties, Ltd.'s 1, Legal Subdivision 11, and Frontier Royalties, Ltd.'s 1, on Legal Subdivision 11, Section 16, Township 18, 2-w5. Locations have been announced for Royal Canadian Oils, Ltd.'s 2, on Legal Subdivision 4, Section 16, Township 18, 2-w5, and for Sunset Oils, Ltd.'s 2, on Legal Subdivision 7, Section 20, Township 18, 2-w5. Other companies, who have not yet announced locations, are Brown Oil Corporation, Ltd., which will drill No. 5 on Okalta acreage; Mar Jon Oil Company, Ltd.; Kermac Petroleums, Ltd.; York Oils, Ltd., for No. 2; Consolidated Oil Company, Ltd., and two new companies who will drill on Legal Subdivisions 1 and 2 of Section 6, Township 18, 2-w5.

Four Turner Valley tests are in the Madison limestone, producing formation, with completion of at least two of them expected for this month: West Flank Oil Company, Ltd.'s 2, on the line between Legal Subdivisions 1 and 8, Section 32, Township 18, 2-w5, drilling at 6800 feet, about 300 feet in the lime; Brown Oil Corporation, Ltd.'s 3, Legal Subdivision 1, Section 19, Township 19, 2-w5, drilling at 6585 feet, about 250 feet in the Madison; Richland Oils, Ltd.'s 2, Legal Subdivision 5, Section 28, Township 18, 2-w5, drilling at 6623 feet, about 225 feet in the lime, and Royalite Oil Company, Ltd.'s 29, cemented at the lime contact, 6299 feet.

Globe Royalties, Ltd., last week made arrangements to complete its well on Legal Subdivision 7, Section 29, Township 18, 2-w5, immediately south of and adjoining leaseholds of Commoil, Ltd. Snyder & Head, drilling contractors, will complete the well, now at 2475 feet.

Boundary Wildcat

A new wildcat test near the International boundary was announced by T. B. Kyle, Alberta and Montana operator, who will drill on the Bridge Dome structure, 15 miles north and east of Coutts, 5½ miles north and west of the old Imperial - Erickson - Coulee well and 7 miles north of the Montana boundary. The structure is on the Sweetgrass arch uplift, being the only structure to show a closure in this part of the arch. Leases have been obtained on 4000 acres in the area and financing for the first test, to be undertaken this spring, has been completed.

On the Highwood-Sinclair structure, Green Valley Petroleums, Ltd.'s Banner wildcat, Legal Subdivision 6, Section 34, Township 17, 3-w5, was drilling

in the brown sand in the lower Dalhousie at 5003 feet, with the value of the sand for possible oil production to be known within a few more feet of drilling. Encountered at 4875 feet, the Dalhousie will be passed and drilling continued to the Madison if commercial production is not obtained. The gas flow has increased, causing additional caving. The wildcat is now cemented to the Dalhousie.

An auction of four oil land sub-divisions to the southwest of present Turner Valley activity and two miles east of the northern boundary of the E. P. Ranch, owned by the Duke of Windsor, brought six bids of more than $1,000 each. Successful bidder was N. D. Dingle, of Calgary, who offered $1,766 for the oil and gas rights on the 160 acres. The low of the 16 bids submitted was for $110.

Gain Market Outlet

Further encouragement to Turner Valley operators, seeking additional markets for their crude in an effort to lift proration now set at 35 percent of potential, was given in an announcement that North Star Oil Company, Ltd., is making changes in its St. Boniface refinery equipment that will permit use of Turner Valley crude in place of United States crude heretofore used. Capacity of the plant is 2000 barrels daily.

Provincial government authorities are continuing their five-day tests of producing Turner Valley wells to obtain revised potentials as rapidly as existing storage facilities permit. While official announcements have not been forthcoming, it is believed that the tests will bring lowering of potentials, most of which were set several months ago on three-day tests. Whether the lower potentials will result in an upward revision in the percentage of proration take, however, will depend on production of tests now nearing completion and any further increase in the field's potential by acid treatment of present producers. Oil is now flowing through the 50-mile pipe line to Calgary at the rate of 13,000 barrels a day, with about 8,000 barrels of this total being shipped by rail to refineries at Moose Jaw, Regina and other West Canadian points. Additional pumps have been ordered for the line which, when installed, will boost its carrying capacity to about 16,000 barrels a day.

To resume Chilean drilling

Exploratory drilling in the Straits of Magellan undertaken by the Chilean government during 1936 and 1937, will be resumed in 1938, according to official advices received from Santiago December 22.

Exploratory drilling in the Magellan territory was suspended late in 1937 due to lack of funds.

It is anticipated that the appropriation for 1938 will not be as great as it was for the work carried on in 1937.

Y.P.F. moves offices

Headquarters of Yacimientos Petroliferous Fiscales were to have been moved January 15 from Paseo Colon 922, Buenos Aires, to Diagonal Roque Saenz Pena 777, same city, according to word received recently from Argentina.

OKLAHOMA FIELDS

Three offsets to Ramsey pool discovery well announced.

* * *

Traugh, Seminole County, well makes 75 barrels hour.

* * *

Grady County test nearing 10,000 feet in depth.

Tulsa.—The new Ramsey pool, southwest of Stillwater in Payne County, again took the lead in Oklahoma oil news last week as three locations were announced. They are offsets to the discovery producer and were made following a meeting at Tulsa last week of principals in the community block, where plans for future development of the area were discussed. The Traugh pool of Seminole County got another good producer, and in Osage County, south of the South Burbank pool, a wildcat test was started. In Southern Oklahoma another test was getting started, to drill to the deep oolitic lime, south of a recent producer there.

Mid-Continent Petroleum Corporation, holding ¾ interest in the community block on which Ramsey 1, SWc NW 18-18n-2e, drilled to second Wilcox sand and opened the Ramsey pool, will continue as operator, with work starting immediately on three new tests. South offset to Ramsey 1 is Jones-Wetzel 1, NWc SW 18-18n-2e; diagonal southwest offset is Carl Wetzel 1, NEc SE 13-18n-1e, and west offset is O. E. Brandon 1, SEc NE 13-18n-1e. Other companies in the block include Carter Oil Company, ⅛ interest, and Sinclair Prairie Oil Company and Transwestern Oil Company, each having 1/16 interest.

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Meanwhile, the discovery well, at 4796 feet in second Wilcox sand, was ready to start producing its discovery right of 15,000 barrels of oil. Probable extent of the field, which is a seismograph discovery, is a matter of considerable argument among oil men, but a majority are inclined to believe it will be about the size of the Crescent pool of Logan County, which covers approximately 3200 acres. Judging by the discovery well, the pool may be one of the most important for the state in several years. On a 3¾-hour test late last week, Ramsey 1 flowed 500 barrels of oil. Gas continues holding at around 7,300,000 cubic feet per day.

New producer for the Traugh pool of Seminole County was Atlantic Refining Company's Dameron 2, NW NE NW 22-6n-6e, making 150 barrels of oil per hour for 2 hours from dolomite at 3662 feet before being shut in. Operators were waiting on pipe line connections and tankage before taking a potential test. It had top of the formation at 3615 feet, where 7-inch casing was cemented.

Farm name had not been announced for a wildcat test 2 miles south of the South Burbank pool of Osage County, to be drilled by Norbla Oil Company and Carter Oil Company at NWc 3-24n-6e. It is 3 miles north of the town of Gray Horse. Norbla Oil Company will be operator.

In Hughes County, southwest of Calvin, Phillips Petroleum Company's Becker 1, NE NW SW 8-5n-10e, was running drill pipe back into the hole to core ahead. Previously, the test had been shut in to run pipe for the core, and with 75 joints of pipe in the hole, started flowing between the drill pipe and the casing, heading up and making about 15 barrels of oil and an unestimated amount of water. Danger from gas caused operators to shut the well in over night. Drill pipe was started back in the hole the following morning. After drilling to 5757½ feet earlier in the week, the well had started bailing. When the bailer was run to the 4700-foot level, salt water was found. A good show of oil and gas was had in the Cromwell sand from 4398 to 4499 feet, but it is thought the well will be carried ahead to second Wilcox sand for a test.

Carter Oil Company et al's Claytor 1, C W½ SE NW 27-2n-9e, in the Centrahoma area of Coal County, was running tubing to acidize the Viola

lime above the plug-back depth of 6480 feet. Viola lime was found at 6008 feet.

An attempted northern extension of the Jesse pool of Pontotoc County was quashed last week as Continental Oil Company abandoned C. V. Thompson 1, C S½ NW SW 35-2n-7e. After failing to find production at 4552 feet, the well was plugged back to 3769 feet in Cromwell sand where casing was perforated from 3397 to 3455 feet. It was also nonproductive.

Ardmore

Gulf Oil Corporation was making the new start for Oolitic lime production in the old Fox pool of Carter County, the test to be a south offset to the company's Smith 1, C SW SW 26-2s-3w. New try is Weston Lester 1, C NW NW 35-2s-3w.

Following acidization with an additional 10,000 gallons, Gulf Oil Corporation's Johnson 1, C SW NW 27-2s-3w, flowed 704 barrels of oil in 12 hours through ⅜-inch choke, producing from 7970 feet in oolitic lime. The company's Smith 1, C SW SW 26-2s-3w, continued flowing, making around 500 barrels of oil during the last 24-hour period opened.

Carter Oil Company's Carter-Harley 1, C NW NW 19-2s-3w, was waiting on cement after running 9⅝-inch casing to 5810 feet.

Gulf Oil Corporation's Thomas 1, SW NW NW 14-4n-5w, in southeastern Grady County, was drilling below 9885 feet. The other deep test for that part of the state, Coline Oil Company's Johnson 1, SW SE NE 1-2n-8w, northwest of Marlow in Stephens County, was waiting on cement to set after cleaning up a bad hole at 8674 feet.

Another 90 feet and Oklahoma will have its fifth 10,000-foot test. Gulf Oil Corporation et al's Thomas 1, SW NW NW 14-4n-5w, in southwestern Grady County, north of the old Knox pool, was attempting to restore circulation lost at 9910 feet in shale. Various small shows and stains of oil have been encountered between 8050 and 9414 feet.

Oklahoma City

Operations picked up somewhat for the Oklahoma City sector, with a good producer coming in for Billings pool in Noble County. Phillips Petroleum Company and Shell Petroleum Corporation's McCaughtry 14, SEc NE 21-23n-2w, made a potential of 3290 barrels of oil from 4347 feet in Wilcox sand. Gas was gauged at 2,450,000 cubic feet.

The same companies were running tubing to take potential at Harbison 1-A, NWc SW 22-23n-2w. After topping Wilcox sand at 4275 feet the well was drilled to 4316 feet where it made 883 barrels of oil in 3½ hours, flowing through drill pipe. It was making an estimated 13,500,000 cubic feet of gas.

Lincoln Petroleum Company's Conway 4, NE NW SE 16-23n-2w, at the west edge of the pool, filled 3000 feet with salt water following a shot with 20 quarts at 4335 feet in Wilcox sand. Top of the formation was at 4313 feet.

Ohio Oil Company was cleaning out to shoot Knight 1, SE NE SW 12-17n-1w, in the Langston pool of Logan County. At 5083 feet in Wilcox sand the well made 446 barrels of oil in 24 hours. Top of the Wilcox was 5032 feet. A south offset is being started by Amerada Petroleum Corporation and Stanolind Oil & Gas Company at Knight 2, NEc SE 12-17n-1w.

In the Lamont pool of Grant County, Carter Oil Company et al's Booher 1, C WL NW SW 16-25n-3w, was waiting on cement at 5415 feet after plugging back from 5432 feet. Carter Oil Company et al's Barclay 1, C EL SE NE 17-25n-3w, was drilling below 5031 feet in chert. Magnolia Petroleum Company's Reynolds 1, NEc SE 19-25n-5w, was drilling below 5390 feet.

Harry Hollenback et al's Clark 1, NWc 34-21n-6w, a wildcat in Garfield County, near Waukomis, went into Sylvan shale at 6940 feet late last week, apparently missing the Hunton lime. Thinning of the Mississippi section above the shale makes the well check considerably higher than was expected, putting it in favorable position for finding production. Geologists failed to agree on identity of a thin streak of sandy shale found at base of the Woodford, but it was tentatively identified as Misener sand. It was drilling below 6955 feet, looking for the Simpson.

Tulsa. — Oklahoma operators completed 32 wells during the past week, 20 being oil wells with a total initial production of 1319 barrels. Two wells were completed for 23,750,000 cubic feet of gas, and 10 starts were completed as failures.

Reported were 21 new starts, with Oklahoma and Osage counties making 4 reports each, Carter, Jefferson, Okmulgee and Seminole counties 3 each, Cleveland, Lincoln, Pontotoc and Pottawatomie counties 2 each, and Atoka, Caddo, Creek, Grady, Muskogee, Okfuskee and Wagoner counties 1 each.

OKLAHOMA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CARTER COUNTY—		
Pure Oil, Moyer 5, ne se ne 6-4s-3w (pb 1140)	5	1274
Sinclair Prairie, Richards 17, ne sw nw 9-4s-3w	*	920
CREEK COUNTY—		
Alma Oil et al, McKee 2, nw sw nw 7-17n-8e	45	2970
JEFFERSON COUNTY—		
Palmer & Palmer, Ryan 1, sw sw se 8-6s-6w	*	2604
LINCOLN COUNTY—		
Wilcox O&G Co., Sac & Fox 7, se se nw 15-14n-6e	90	2995
LOGAN COUNTY—		
Marshall, Fruin 1, se se sw 4-16n-1e	*	5285
Sinclair Prairie, Knetch 1, cn½ s½ ne 28-18n-4w (pb 3440)	¶22.5	4240
Hall & Briscoe, Schollp 1, sw nw se 32-20n-2w	*	2150
MUSKOGEE COUNTY—		
Arthur Oil, Washington 7-A, se nw sw 7-14n-18e (pb 1423)	18	1486
NOBLE COUNTY—		
Seaboard Western Oil, Guthrie 1, nw nw ne 6-20n-2w (otd 5453)	114	5477
OKFUSKEE COUNTY—		
Feagen, Foster 2, nw sw ne 25-11n-9e	*	1616
Sand Springs Home, Buckley 1, nw nw nw 12-12n-11e	*	2808
OKMULGEE COUNTY—		
W. A. Curtis, Jefferson 1, sw sw sw 26-16n-13e	*	620
OSAGE COUNTY—		
Patter, 9, nw se nw 13-21n-8e	*	1330
North Avant Unit, 53, nw sw nw 32-24n-12e	1	1724
PAWNEE COUNTY—		
E. S. Brewer, Cotton 11, ne se sw 6-20n-8e	12	2647
PONTOTOC COUNTY—		
Continental, C. B. Pettyjohn 1, sw sw sw 1-1n-7e	¶8.5 & 264	4053
Blackstock & Magnolia, Steed 2, se se ne 35-2n-6e	41	4060
McCollum et al, Layne 3, sw ne nw 30-5n-5e	110	2500
POTTAWATOMIE COUNTY—		
Magnolia, West 3, se sw ne 26-6n-4e (pb 3523)	30	3534
Gulf Oil, Lulu 2, se nw nw 13-7n-4e.	156	3134
Stanolind-Amerada, Rushing 5, se nw se 32-11n-4e	278	4425
SEMINOLE COUNTY—		
Aston, Huddleston 2, se sw nw 32-6n-6e	*	1720
Sinclair Prairie, Jones 1, sw sw se 9-8n-6e (pb 3392)	16	4369
Pure Oil, Reed 5, se sw se 14-8n-6e (otd 4220)	168	4240
Arrow et al, Adams 1, ne ne se 33-8n-7e (pb 3218)	32	3310
STEPHENS COUNTY—		
Olsen Drlg., Blake 1, sw sw nw 22-2n-8w (pb 5020)	75	6007
Carl Carter, Beulah Warden "B" 2, se ne nw 34-1s-5w	10	727
Beulah Warden "A" 5, ne sw ne 34-1s-5w	6	1020
Gulf, L. Sims 13, nw se sw 13-2s-4w	4	528
Pace, Gilsworth C-3, sw sw nw 2-2s-8w	*	2215
TULSA COUNTY—		
Mays et al, Call 1-A, se se sw 30-17n-14e	¶1.25	1432

*Failures; †Junked; ¶Million cu. ft. gas.

KANSAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BARBER COUNTY—		
Pryor & Lockhart, Pickens 1, cw½ e½ sw 34-30s-14w	*	4745
Barbara Oil, Holmes "B" 1, cne 22-33s-13w (pb 4640)	¶1.75	4930
Holmes 2, cne ne 28-33s-13w	¶3.5	4600
BARTON COUNTY—		
Phillips, McClanahan 2, sw sw se 7-16s-13w	2312	3364
Shell, Hoffman 1, se se sw 7-16s-13w	1748	3366
Johnson, Bitter 3, ne ne sw 8-16s-13w	638	3388
Stanolind, Stueder 3, sw sw sw 26-16s-13w (pb 3320)	*	3378
Armer & Vernon, Ainsworth 4, ne nw se 33-16s-13w	609	3426
Shell, Stettinger 1, ne nw se 1-16s-14w	2473	3370
Eckart 1, se se sw 13-16s-14w	*	3423
Herndon Drlg. et al, Arnold 1, nw nw sw 19-18s-15w	¶45	3535
Lario et al, Rehme 2, se se sw 15-19s-11w	¶6 & 2124	3115
Stanolind, Thomas 1, se se sw 36-19s-11w (pb 3305)	326	3318
Lebow & Bennett, E. Steckel 1, sw sw sw 1-20s-11w	1111	3287
Stanolind, E. H. Isern 1, ne ne sw 3-20s-11w (pb 3308)	130	3318
I.T.I.O., Bryant 2, se ne se 23-20s-11w	*	3318
Gulf, Sessler 5 nw nw sw 24-20s-11w	2690	3278
Magnolia, Roetzel 2, ne nw ne 25-20s-11w	1514	3260
BUTLER COUNTY—		
Molk, Brown "A" 2, ne sw nw 32-26s-5e	45	2724
COWLEY COUNTY—		
Brewer, Starkey 2, se se ne 16-30s-4e.	424	2790
Starkey "B" 1, se sw ne 16-30s-4e.	*	2821
Roth, Fry 1, nw sw sw 8-31s-3e	*	2660
Smith et al, Henderson 1, sw sw sw 25-32s-6e	*	3370
ELLIS COUNTY—		
Lario, Cress 3, sw ne ne 13-11s-17w.	3207	3338
Cities Service, Hall "B" 3, nw sw nw 26-11s-17w	2995	3400
Stanolind, Austin 1, ne ne ne 36-12s-16w (otd 3087) (pb 3310)	*	3370
Watchorn O & G, Brown 1, ne ne se 34-13s-17w	50	3525
ELLSWORTH COUNTY—		
Hinkel Oil, Andrea 1, ne ne se 7-17s-10w	*	3416
Transwestern Oil, Myers 1, sw nw nw 18-17s-10w	*	3306
Magnolia, Ehly 1, nw nw se 30-17s-10w	*	3334
Skelly, Zink 3, nw sw sw 32-17s-10w.	¶7 7327	3020

KANSAS FIELDS

Ellis County wildcat has oil slopping over casing top.

* * *

Hall and Letsch pools in Russell County are connected.

Wichita.—Ending a week of comparative quiet, Kansas operators opened one new pool, extended another, increased production in a large gasser and reported possible linkage between the Hall and Letsch pools of Russell County. A small producing area was indicated for McPherson County.

Glimac Oil Company et al's Richards 1, SE SW NW 5-11s-18w, northwest of the Haller pool in northern Ellis County, drilled to 3370 feet in the Kansas City lime and had a fill-up of 3100 feet of oil, which was slopping over the top of the casing when last reported. Gravity was 36.8 degrees. It was cleaning out and erecting tankage before making a production test.

Stanolind Oil & Gas Company's Mettscher 1, NEc NW 13-22s-13w, pushed producing limits of the Drach pool of northern Stafford County a half mile south. Topping Siliceous lime at 3671 feet, it was drilled to 3678 feet. Good saturation was had in a core between top of the formation and total depth. Successful completion of the test would make it the second commercial producer for the field, opened more than a year ago.

Skelly Oil Company's Lunt 1, C NW¼ 18-28s-11w, south of Cairo and in the area south of the Gilchrist gas pool of Pratt County, making 68,000,000 cubic feet of gas from Viola lime at 4335 feet. The well is considered important in that it is a starter in proving up a large amount of acreage in the area. Many geologists point to the definite northeast-southwest trend running through the Cunningham pool itself and contend the two pools are situated on the same structure, thus making considerable of the area between them a source of production. Wells drilled at the southwest end of the Cunningham pool are known to have a somewhat higher gas volume than those in the heart and to the northeast end of the field.

Carter Oil Company's Hoglund 1, C WL SW NW 8-17s-3w, in the Lindsborg area, McPherson County, was to have run rods and started pumping about January 13. Hoglund 1, at 3373 feet, in Viola lime, acidized with 2000 gallons, following which it swabbed 10 barrels of oil per hour during a 6-hour test. Simpson sand and Siliceous lime were both present in the test, with a small show of oil and considerable water in the first formation and no show in the Siliceous. It was plugged back for the present production.

Connection between the Hall and Letsch pools of Russell County was established by R. H. Shields et al's Rogg 1, NWc SW 28-14s-13w, which drilled to 2922 feet in Oswald lime, filling 2600 feet with oil. Operators were running pipe for a production test. The well is 2 miles west of the Letsch pool and 1½ miles northeast of the Hall pool.

Southwest of Dighton in Lane County, Phillips Petroleum Company's Kees 1, C SE SE 3-19s-30w, was drilling below 3645 feet with nothing showing. Nearest production is in the Shallow Water pool of Scott County, more than 20 miles to the southwest.

East offset to the discovery producer in the Andover South pool of Sedgwick County, National Refining Company's Pray 1, SW NW SW 31-27s-3e, reported shows of free oil in Kansas City lime at 2425 to 2430 feet and was preparing to run casing for a water shut-off. The well was bottomed at 2470 feet, and will be drilled to the Wilcox sand. The test previously encountered 14,000,000 cubic feet of gas in the Stalnaker sand from 2012 to 2022 feet. It will be used for fuel in drilling other tests in the vicinity.

Company, Well and Location	Init. Prod. Bbls.	Depth
GRANT COUNTY—		
Wilson, Bennsteffgel 1, c sw 16-28s-37w	¶7.5	2720
United Prod, Christian 1, c sw 16-30s-36w	¶5.5	2602
Panhandle Eastern, McCandless 1, c e½ 35-30s-37w	¶12.5	2800
MARION COUNTY—		
Palmer et al, Matz 1, sw se se 8-19s-1e	*	3520
PRATT COUNTY—		
Helmerich & Payne, Hoeme 1, se se ne 20-26s-12w	*	4470
Skelly et al, Adams 1, se nw ne 2-28s-11w (pb 4200)	¶43.5	4300
RENO COUNTY—		
Falkin, Priddle 2, nw se sw 16-24s-4w (pb 3375)	737	3379
RICE COUNTY—		
Sinclair Prairie, Bolton 5, nw sw sw 31-18s-7w	1292	3228
Gulf, Stout 2, se ne ne 6-18s-10w	3282	4022
Continental, Warner 2, nw nw nw 6-19s-7w	2016	3253
Atlantic, Gessman "B" 2, se se nw 8-21s-7w	96	3348
Lauck & Moncrief, Heter 3, ne ne se 1-21s-8w (pb 3349)	337	3359
RUSH COUNTY—		
Wakefield & Brouk, Kerbs 1, nw nw se 11-17s-16w	*	3629
RUSSELL COUNTY—		
Cities Service, Krug 1, sw sw nw 17-14s-14w	210	3152
Stanolind, Benso 19, nw sw sw 4-14s-15w	*	3407
Mermis 19, nw sw ne 5-14s-15w	437	3274
Mills 1, ne ne sw 10-14s-15w	874	3274
Cities Service, Boomhaur 12, se ne ne 25-15s-14w (pb 3307)	442	3311
STAFFORD COUNTY—		
Stanolind, Elbert Siefkes 1, nw nw se 34-21s-12w	*	3710
Amerada, Techman 1, nw nw se 12-22s-13w	*	4015
Fred Rust et al, Sims 1, nw nw sw 8-23s-11w	*	3729
STEVENS COUNTY—		
Panhandle Eastern, Zimmerman 1, c ne 35-31s-38w	¶5.25	2822
Kuhn Bros., Younggren 1, c se 32-33s-38w	¶8.33	2715

*Failures; †Junked; ¶Million cu. ft. gas.

Wichita.—Operators in Kansas completed 54 wells last week, 27 being oil producers with a total initial of 39,491 barrels. Nine gas wells were completed and gauged at 132,830,000 cubic feet. Eighteen starts were failures.

Scouts made 34 reports of new locations for the same period, with Russell County leading with 8. Barton County counted 6 locations, Ellis County and Rice County 4 each, Stafford County 3, Barber, Stephens and Sumner counties 2 each, and 1 was counted for Cowley, Ellsworth and Harper counties.

Drilling to Arbuckle lime for Fitts brine disposal

Tulsa.—Magnolia Petroleum Company, one of the major operators in Fitts field, Pontotoc County, is completing moving in tools for a salt water-disposal well to be started immediately at the west end of the pool. The well will be carried to an estimated depth of 6500 feet in Arbuckle lime, underlying the nine productive strata of the field proper. Location is SW SW NE 26-2n-7e.

The well is part of a $200,000 salt water disposal system which will handle a maximum of 25,000 barrels of brine per day. A cooperative system, engineered and advanced by other major interests operating in the field will dispose of most of the brine produced by the other operators. Inter-field pipe lines, to be used solely for brine disposal, will take the fluid from individual settling basins and from field batteries.

TEXAS PANHANDLE AREA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CARSON COUNTY—		
Gulf, Cooper 22	412	3049
GRAY COUNTY—		
Cities Service, Heitholt 2	617	3278
I. T. I. O. Co., Smith 12	955	3265
Gulf, Barrett 11	445	3298
Kewanee Oil Co., Arnold 13, sec 149	459	3275
Arnold 14, sec 149	594	3262
Morse-Adams 7-A, sec 3	378	2562
Morse 6-C, sec 16	393	2622
King Oil Co., Jackson 7	348	3315
Magnolia, Fee (No. 227) 19	358	2952
Southern Pet. Explor. Co., Vaughan 10	744	3224
Texwell Oil Corp., Vaniman 1	¶10.6	3505
HUTCHINSON COUNTY—		
Continental, Johnson 5-C	787	3057
J. E. Crosbie, Pitts 21	819	3030
Martex Pet. Co., Pitcher 5-A	552	3165
McIlroy Oil Co., Tomlinson 1	385	3185
Phillips, Cockrell 31	356	3020
Seaboard, Whittenburg 3	359	2717
Texas Co., Lewis 15	587	3060
MOORE COUNTY—		
Magnolia, Jones 5	656	3365
WHEELER COUNTY—		
El Bar Corp, Perkins 2	116	2425

*Failures; †Junked; ¶Million cu. ft. gas.

WEST TEXAS FIELDS

Mason field outpost flow from Delaware is surprise.

* * *

Waddell-Jordan and Judkins producing areas joined.

San Angelo.—Development of flowing production from the lower section of the Delaware by a 3-mile outpost for the Mason pool, Loving County, provided a surprise for Delaware basin operators. Ordovician prospects likewise figured in the news, but with less favorable results, although a deep wildcat in southwestern Pecos County is showing oil and gas.

Renewed interest in the Mason area occurred when Barnett Petroleum Corporation's W. D. Johnson 1-A, SEc NE¼ of T&P Ry. Section 12, Block 56, Tsp. 1, flowed 3 barreds oil hourly natural by heads from two feet of sand topped at 3844 feet, or 800 feet below sea level. Previous attempts to make a producer after 170-quart shot in regular Mason pool horizon at 3678-3728 feet was a failure, and deeper drilling was considered a long shot bet for production. Johnson 1-A logged top of Delaware lime at 3675 feet, and first sand section at 3704 feet, with an elevation of 3044 feet. Later development may prove that the northwest outpost producer is a separate oil area. Two failures drilled last summer by Stanolind Oil & Gas Company as south offsets to the first completions in the Mason pool found water in the lower section of the Delaware.

More than half dozen Ordovician tests for the south portion of the Permian basin have reached a critical stage. Stanley A. Thompson et al's Elsinore Cattle Company 1, near C SE of GS&SF Ry. Section 53, Block D, placed southwestern Pecos County in the spotlight with gas showing at 7065-73 feet, and oil saturation in sandy-lime at 7081-87 feet. Coring was underway at 7098 feet after installing control head. It has an elevation of 3938 feet. Showings are credited with being in the basal Pennsylvanian. Thompson et al are attempting to explore the Ordovician, and have a 38,000-acre block, including 47¾ sections donated by Elsinore Cattle Company with provision that lease sales not be made until commercial production is found. Thompson is a resident of Fort Worth, and prospered through the discovery and development of the Hendrick field.

Gulf Oil Corporation's M. B. McKnight 3, 2¾ miles northeast of nearest production from the Ordovician in the Sand Hills field, Crane County, appeared to be a failure, with water showing in Ellenberger at 6164-95 feet. Top of Simpson was logged at 6079 feet, with an elevation of 2693 feet, giving it a high structural position and a comparatively thin section of mid-Ordovician. H. F. Wilcox Oil & Gas Company's McKnight 1, wildcat in northwestern Crane County, was ordered plugged at 7222 feet after failing to pick up the Ordovician series. It checked low on Permian markers.

Production test through tubing will be given Magnolia Petroleum Company and Tex-Mex Petroleum Corporation's J. H. McKee 1-a, northern Pecos County deep prospect, during the current week. String of 9⅝-inch pipe was cemented at 5192 feet after coring sand with oil odor at 5274-80 feet, and sandy-lime at 5280-89 feet followed by shale 5294 feet. Owners would not hazard a drill stem test with open hole below 160 feet. This wildcat is believed to be in lower Simpson, topped at 4775 feet, with an elevation of 2385 feet.

Moore Bros. Corporation's Paul Perner 1, western Crockett County Ordovician project, was drilling in shale and lime at 8865 feet. Floyd C. Dodson and B. A. Duffey's Texas American Syndicate 1-a, northern Brewster County Ordovician wildcat, was drilling at 6780 feet, and is credited with being in the Simpson.

Outpost so situated as to require decision on field

Midland.—Linking of the Waddell field, Crane County, with the Jordan and Judkins areas to the northwest became assured when Gulf Oil Corporation's M. F. Henderson 11, SE NE NW PSL Section 4, Block 23, began filling with oil from sandy-lime at 3223-30 feet, and was drilling at 3270 feet. Main pay is due from porous lime near the 3500-foot level. It is about 12 feet lower structurally than the nearest producer in the Jordan field, which is a southwest continuation of the older Judkins field, Ector County.

Completion of a producer by the Henderson outpost will force the Railroad Commission to make a ruling as to whether it is to be allocated to the Jordan or Waddell fields. Gulf Oil Corporation has 10 flowing wells on the Henderson tract in section adjoining to the east. Recent action taken by the Commission in moving the north boundary of the Jordan area several miles north into Ector County has brought protests from operators. It is charged that the order was designed to benefit University of Texas acreage. Development has proved that production is continuous.

Staking of two locations by Honolulu Oil Corporation on the Slaughter land boosts total operations in the Slaughter pool, Hockley County, to 5 active tests. Slaughter 1-51 is an east offset to recent completion by The Texas Company, and Slaughter 1-77 is a west offset to Stanolind Oil & Gas Company's southeast outpost. Gulf Oil Corporation has derricks up to drill southeast and southwest outposts near the Terry County line. Richardson Oils, Inc.'s Slaughter 1, two miles north of the discovery producer, logged top of anhydrite at 2140 feet, or 87 feet higher structurally than the original well, and was drilling at 4310 feet. Performance of these pending completions will have direct bearing on the starting date for a promised pipe line outlet.

Honolulu Oil Corporation's J. E. Parker 1-6, NE NE NW PSL Section 6, Block A-44, about 1¾ miles north of production in the Parker pool, Andrews County, was slated for abandonment after encountering sulphur water in lime at 4793-4805 feet, with an elevation of 3212 feet.

WEST TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ANDREWS COUNTY (Fuhrman)—		
Fuhrman Pet. Corp., Ford 6	3165	4465
ANDREWS COUNTY (Means)—		
Humble, Means 33	192	4530
Means 34	258	4538
BORDEN COUNTY—		
Continental, Clayton-Johnson 1-A	*	3538
CRANE COUNTY (Wildcat)—		
H. F. Wilcox O&G Co., McKnight 1	*	7222
CRANE COUNTY (Gulf-Waddell)—		
Gulf, Waddell 20	9648	3518
CROCKETT COUNTY (World-Powell)—		
Armer & Black, Powell 4-B	†	375
CROCKETT COUNTY (Wildcat)—		
Simpson et al, Hoover-Magnolia 2	51	2056
ECTOR COUNTY (Goldsmith)—		
Cities Service, Cummins 4-C	411	4257
W. H. Dunning, Jr. Estate, C. Scharbauer 3	816	4228
Gulf, Goldsmith 56	876	4280
Goldsmith 59	924	4250
Goldsmith 60	2872	4215
Goldsmith 61	2500	4225
Humble, Cowden 4-B	822	4202
Scharbauer 6-C	364	4195
Landreth Prod. Corp., Scharbauer 8-E	1468	4215
Magnolia, Slator 2	1081	4282
T. P. C&O Co., Scharbauer 15	1832	4245
ECTOR COUNTY (Judkins)—		
Fogelson et al, University 5-B	705	3654
Texas Co., Connell 20	580	3630
ECTOR COUNTY (North Cowden)—		
Stanolind, Cowden 66	312	4300
FISHER COUNTY (Rotan)—		
Lewis Prod. Co., Morrow 4-a	455	3543
HOWARD COUNTY—		
Merrick &Bristow, Hooks 13	1255	3260
Plymouth Oil Co., T. P. Land 14	1040	2539
Shasta Oil Co., Texas L&M Co. 1-B	1403	2850
JONES COUNTY—		
Kouri et al, Fielder 1	*	2356
PECOS COUNTY (Taylor-Link)—		
Arkansas F. O. Co., University 2-A	141	1646
PECOS COUNTY (Wildcat)—		
Tuller et al, Perry 2, sec 13	*	2004
WARD COUNTY—		
Gulf, Hutchings 93	654	2550
Humble, University 20-F	980	2751
Turman Oil Co., Sloan-Llano 9	108	3030
WINKLER COUNTY (Emperor)—		
Emperor Oil Co.-S. J. Iverson, Halley-DeSpain 2	1025	2904
WINKLER COUNTY (Henderson)—		
Emperor Oil Co., J. W. Hess 6	4000	3067
WINKLER COUNTY (Kermit)—		
Humble, Colby 24-A	384	3115
Magnolia, Walton 123	979	2933
Walton 124	1018	2945
T. P. C&O Co.-Wahlenmaier, Duval Roy. Co. 5	1120	3080
YOAKUM COUNTY (Bennett)—		
Shell, Bennett 1	402	5259

*Failures; †Junked; ¶Million cu. ft. gas.

NORTH TEXAS FIELDS

Lease buying spree continues at K-M-A.

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Several extensions are in prospect.

Wichita Falls.—Elapse of two months since the K-M-A deep area launched its deferred major lease play and drilling campaign has not diminished the demand for proved, semi-proved and wildcat acreage. Lease prices have steadily advanced to higher levels, and late entrants are showing a willingness to buy in the face of rising prices in order to participate in the pending development. Bonus of $2000 per acre, half cash and balance payable from production, has recently been paid by independents to establish a peak price for large leases. Few single-well drilling sites have commanded higher prices per acre.

Rapid expansion of the productive area since the completion of the first big well in the Kadane sand member of the Strawn series about mid-November has created purchase opportunities for operators and companies that were tardy in entering the play. Independents have set the pace, and have cornered most of the proved acreage. Majors held deep rights on a nominal volume of acreage through previous shallow operations. These include Gulf Oil Corporation, which has elected to farm out its tracts, The Texas Company, Humble Oil & Refining Company and Magnolia Petroleum Company. The latter was the first large unit to make a purchase, and outposts have since proved same. Sinclair Prairie Oil Company, Shell Petroleum Corporation, Phillips Petroleum Company and Continental Oil Company have paid substantial bonuses within the past month for prospective wildcat protection.

Bulk of the recent lease trading has centered along northeast, north, northwest and west trends. The northwest trend involves a portion of the Electra arch, which stands out somewhat like a buried plateau, as the Canyon, Strawn and Ellenberger geological zones are found at unusually high levels when correlated with the same formations in the K-M-A field. Exploratory tests are underway on the south portion of the buried plateau, and on acreage intermediate to same and the field proper.

Extensions in Prospect

Prospective major extensions for the K-M-A deep field consist of wildcats situated 3½ miles west by south and 1¾ miles northwest of nearest production. Geier Brothers, Inc., and F. B. Jackson, Jr.'s C. F. Ancell 1, near the Wichita-Archer County line, reported last week with top of lime at 3837 feet, or 2786 feet sub sea, is due to drill plugs and make a production test shortly. Saturation logged in sandy-lime section at 3955-90 feet is believed to be adequate to make a producer, although the test is structurally low.

Joe A. Worsham et al's Waggoner Bros. 1, southeast corner of BS&F Ry. Section 13, A-394, is exploring the northwest trend, and reached an interesting stage when top of big lime was logged at 3588 feet, or 2454 feet below sea level. It is 137 feet higher structurally than King Oil Company's Waggoner Bros.-Gulf 1, nearest producer, on the lime marker, but is 313 feet lower than the same marker logged by Gulf Oil Corporation's T. L. Burnett 43, located 3 miles to the northwest. Unusual structural relief recorded by the latter is due to it being situated on the Electra arch, which resembles a buried plateau in comparison to the K-M-A structure. Burnett 43 found water in the Ellenberger at 3715-4295 feet, with an elevation of 1124 feet, and failed to make a commercial oil producer after nitro shot in Strawn at 3598-3650 feet.

Worsham et al were coring at 3750 feet, according to late reports, with slightly saturated sand and shale at 3738-48 feet, and will run pipe when first saturation is encountered. Position of this outpost is assumed to be on the south flank of the Electra arch.

Rathke Oil Company et al's T. L. Burnett-Gulf 1-A, near C NW NE of HT&B Ry. Section 4, A-572, short distance north of Burnett ranch Elenberger and Strawn failure, was drilling at 2200 feet, with an elevation of 1137 feet. Top of the lime is due near the 3200-foot level.

Shell Petroleum Corporation and Phillips Petroleum Company have purchased wildcat protection after carrying on extensive geological and geophysical surveys. Both made purchases about 3 miles northwest of the most western production. Phillips Petroleum Company acquired 100-acre lease in Section 27, and the southwest 160-acre quarter of Section 20, H&TC Ry. Survey, Block 7, for $400 per acre, half cash. Shell Petroleum Corporation is reported to have paid $88,000, half cash, for lease on the SE¼ Section 20, Block 7, and also acquired lease on 6 tracts, aggregating 175 acres in Blocks 14, 16, 17, 40, 41 and 42, KWVFL sub-division, near the Wichita-Archer County line. The latter acreage is east and south of production, and is northwest of 3 deep failures.

W. H. Bohner et al's First National Company 1-A, NEc Lot 7, Block 26, located north of the older section of the field, flowed 900 barrels natural in 11 hours. First saturation was logged at 3640 feet, with an elevation of 1010 feet, and sand or sandy-lime prevailed to 3840 feet.

Burk Royalty Company's W. L. Warren 1, near northeast corner of Block 32 and 1 mile south of production, tested 2 bailers fluid per hour, half oil and balance salt water, at 3946 feet. It will be deepened to the Ellenberger. Top of lime was logged at 3775 feet, or 2762 feet sub sea. The Ellenberger section, which was entered at 4290 feet, with an elevation of 1009 feet, by the original K-M-A deep completion, may yield commercial production in parts of the field, according to the views of some geologists.

Murray and Griffey (was Staley, Grace & Woods') J. R. Pace 1, near east line of J. Scott Survey, A-255, and in east portion of the field, filled 1000 feet with oil after drilling broken pay at 3853-3902 feet, followed by shale to 3921 feet. Cleanout operations are underway following 300-quart nitro shot at 3853-3902 feet. Top of lime was logged at 3720 feet, with an elevation of 1008 feet.

Wheeler Nazro et al's W. P. Ferguson 1, SEc Lot 3, F. Peterswick Survey A-244, north offset to the single Archer County deep producer in the K-M-A area, logged oil sand at 3790-3810 feet, with an elevation of 1048 feet. Pipe has been cemented to complete with a machine.

Consolidated Oil Company et al's W. P. Ferguson 2, W. H. Spillers Survey, A-257, being 950 feet south of the most westerly producer in the field, cleaned itself and gauged 80 barrels oil the first hour. It was shut in to await proration gauge. Production is from sand, sandy-lime and lime section at 3698-3811 feet. Top of lime was called at 3654 feet, with an elevation of 1028 feet. W. B. Omohundro and J. I. Staley's First National Company 2, SWc Lot 11, Block 27, near south bank of the river, logged sandy-lime at 3707-13 feet. When deepened 1-foot into sand to 3714 feet caught the machine crew unprepared for a strong

NORTH TEXAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ARCHER COUNTY—		
Eddleman & Payne, Parrish 6-A, sec 2	15	1606
Wayne King et al, Strange 2, sec 47	*	999
Rathke Oil Co., Bloodworth 7	9	1227
CLAY COUNTY—		
Bridwell Oil Co., Edrington 4-A	150	1109
Edrington 7-A	75	1125
Metzner et al, C. T. Taylor 1	*	404
J. J. Taylor 1	125	1115
Morgan et al, R'ce 1, blk 14	*	300
DENTON COUNTY—		
Lee et al, Boyles 1	*	1902
JACK COUNTY—		
Cockburn Oil Co., Clayton 3-A	407	3098
Harrison et al, Wright 1	*	4801
WICHITA COUNTY (K-M-A)—		
Burk Royalty Co., Hodges 1 (13.72-ac)	160	3933
Burns et al, First Nat'l Co. 18, blk 26	540	3825
Deep Oil Dev. Co.-Bonner Co., Munger 2-H, blk 30	520	3843
King Oil Co., Waggoner Bros.-Gulf 1, lot 8	900	3792
Petroleum Prod. Co., First Nat'l Co. 83, blk 27	538	3838
Reed, Glass & Crenshaw, First Nat'l Co. 14-B, blk 26	750	3846
H. A. Schaeffer Oil Co.-E. C. Norwood, First Nat'l Co. 1, blk 27	510	3820
WICHITA COUNTY—		
C. F. Kolp et al, W. D. McClure 6	161	1939
WILBARGER COUNTY—		
G. M. Shanor et al, Waggoner Est. 1-A, sec 3	*	1975
YOUNG COUNTY—		
Christie Bros. et al, S. Dozier 1	18	3908
Collier & Connor, H. M. Ford 1	*	2650
W. F. Collins et al, L. D. Box 1, sec 1911	*	610

*Failures; †Junked; ¶Million cu. ft. gas.

flow, and was flowing out of control for several hours.

Manson Oil Company's T. F. Mitchell 1, near center Lot 10, C.T. Ry. Section 1, A-51, one mile west of the northeast outpost producer drilled by W. H. Hammon, Hanlon & Buchanan, Inc., encountered tight formation in drilling broken pay at 3919-44 feet. The well flowed by heads after 100-quart nitro shot, and may require pumping equipment to produce its allowable. Top of lime was logged at 3779 feet, or 2751 feet sub-sea. The northeast outpost recorded this marker at 2789 feet below sea level. Hanlon & Buchanan, Inc., is credited with having added about 460 acres to its holdings along the northeast trend, including a purchase in the Jas. A. Bradford Survey, A-27.

Due to the interest focused upon development in the K-M-A field and outlying tests, a number of companies have moved in sufficient scouts to compile a daily report on every operation.

Eleven geophysical crews working at K-M-A

Wichita Falls.—Eleven geophysical crews are engaged in checking structural conditions within the productive limits of the K-M-A deep area, including 3 operated for one company. Seismograph instruments are the most popular with concerns that are taking readings on the big lime section found near the 3600-3700-foot level, and on the Ellenberger limestone at approximately 4300 feet. Wichita County permits shots along public highways, thereby affording access to nearly all sections of the field.

Geophysical information is being sought by prospective purchasers of leases within and near the field, and to familiarize crews with subsurface conditions in the field proper before launching a survey of wildcat acreage in the general area.

EAST TEXAS

200 permits forecast upward trend in East Texas activities

Kilgore, Texas.—Approval of permits for the drilling of about 200 wells in East Texas field as exceptions to the spacing rule given by the Texas Railroad Commission early last week forecasts an upward trend in field activity. This large batch of permits accumulated during the holidays.

The usual year-end slump in field activity has been evident during the first week of January. Total operations, including 56 drilling tests, declined to 130. This curtailment will be reflected by completions beginning next week.

Allowable production of the field is 493,373 barrels daily from 24,344 flowing and pumping wells. Accounted-for dead wells total 93.

EAST TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
JOINER AREA—		
Aston et al, Alford 4-A (11½-ac)	3000	3725
Bering Oil Co.-Wynne Drl. Co., Knight 1-a (2.81-ac)	7400	3622
Goldsmith et al Wiley 2 (218-ac)	1500	3861
Humble, Blackwell 13 (74.4-ac)	6500	3685
Sexton 8-B (54.9-ac)	8000	3716
Wheelis 25 (168.4-ac)	6400	3726
Hunt Oil Co., Wilson 10-A (61.29-ac)	8000	3681
McMillan et al, Thrash 6 (13.42-ac)	5500	3763
Major Oil Co., Cravin 2 (40/100-ac)	8400	3765
Ohio, Kangerga 9, Acct. 2 (65.56-ac)	2000	3650
Ortiz Oil Co.-Bristol, A. Thrash 1 (2-ac)	4000	3674
Regent Oil Co., Harmon 9-B (5.6-ac)	6500	3765
Sinclair Prairie, Ledbetter 21 (200.9-ac)	3000	3662
Stanolind, M. Schuyler 9-B (73.57-ac)	1200	3673
Turman Oil Co., Kangerga 10 (41.56-ac)	8300	3701
Ward Oil Corp., Thrash 35 (200-ac)	7000	3804
KILGORE AREA—		
Amerada, Lacy 12 (83.6-ac)	9200	3573
Galvez Oil Corp., Alexander 6 (45.3-ac)	280	3522
Gen'l American Oil Co., Douglas-Shell 18a (137.93-ac)	3000	3637
Grace Oil Co., Barton 4 (1.43-ac)	2000	3517
Hamill & Smith, Hughey 4 (1-ac), blk 123	2500	3579
Humble, Crim 180 (914.51-ac)	7700	3645
Sexton 14-A (91.7-ac)	10,500	3722
Jenkins et al, Crane 3 (1.92-ac)	2600	3585
Jones & Jones, Brock Est. 5 (13-ac)	8600	3639
Lone Star Oil Co., Griffin 3 (1.91-ac)	3500	3565
Magnolia, Mitchell 8 (20.68-ac)	2600	3625
Meco Prod. Co., Futch-Cooper 9 (62-ac)	2000	3688
Midfield Oil Co., E. Benson 5 (37-ac)	2300	3775
Shell, Willoughby 17 (57.7-ac)	4500	3598
Stanolind, Lockhart 4 (20.92-ac)	3600	3614
Sun, Beall 28 (180-ac)	6800	3594
LONGVIEW AREA—		
Amerada, Continental Bank 19 (100-ac)	8000	3635
Killingsworth 17 (100-ac)	9500	3557
Smith 4 (40-ac)	3600	3579
Barnett Pet. Corp., Phillips 9 (60-ac)	*	3740
Dolores Oil Co., Mattox 3 (10½-ac)	4000	3630
Ellis Oil Co., Mackey-Humble 19 (147.1-ac)	1200	3732
Gen'l American Oil Co., Adams 20 (102.65-ac)	9300	3568
Adams 23 (102.65-ac)	†	3563
McGrede 23 (109-ac)	7800	3614
McGeorge 3-A (13.2-ac)	8800	3483
Walker-Harris 6 (23-ac)	3500	3576
Gulf, Fonville 15 (100-ac)	8700	3561
Humble, Phillips 11 (82¾-ac)	4200	3687
Magnolia, Jones 10 (65-ac)	9800	3660
Marine Prod. Co., Richey 6 (12-ac)	8500	3572
Pewitt et al, Williford 22 (133-ac)	240	3696
Rajo Oil Corp., Barrett 14 (80-ac)	1500	3610
Rancho Oil Co., Edwards 19 (106-ac)	6400	3630
Stanolind, Jones 7-A (30.58-ac)	9800	3685
Stanolind-Tide Water Associated, Persons 27 (151.18-ac)	7600	3541
Sun, Shoults 14 (90.28-ac)	9500	3727
Superior, Jones 11 (64.32-ac)	10,000	3673
Tysco Oil Co., Anderson 6 (11.88-ac)	6500	3510
United East & West Oil Co., Walker 10 (62-ac)	2000	3607
Angus Wynne, Pollward & Lawrence, E. Carter 2 (3.24-ac)	7700	3616
CASS COUNTY (Rodessa)—		
Union Prod. Co., Bauguss Unit 3, R. Trammell sur	181	6044
MARION COUNTY (Rodessa)—		
Geo. Barham, Brantley 1, R. Bennington sur	480	6070
Heyser, Heard & Clardy, L. Henderson 2, R. Bennington sur	421	6048
Shell, L. Henderson B-1, R. Bennington sur	62	6023
ANDERSON COUNTY (Long Lake)—		
Hunt Oil Co., City of Palestine 1 (41-ac)	300	5365
FRANKLIN COUNTY (Talco)—		
Gray & Wolfe, Bolin 2-B (12.7-ac)	200	4340
Housh & Thompson, Owings 10 (109-ac)	150	4270
Humble, Leake 5 (191.9-ac)	332	4307
Wims 3-B (79-ac)	271	4304
Magnolia-Humble, Owings 11 (79½-ac)	250	4300
HOPKINS COUNTY (Sulphur Bluff)—		
D. S. Hager-W. P. Luse & Southwood Oil Co., Reynolds 5 (200-ac)	150	4526
TITUS COUNTY (Talco)—		
Humble, Belcher 4 (116.37-ac)	208	4344
King 55 (1053.36-ac)	206	4312
Lucey Pet. Co., Williams 14 (319.85-ac)	257	4294
Moore, Tr., Moore 4 (14.16-ac)	96	4285
VAN ZANDT COUNTY (Van)—		
Greer & Lide, Chrestman 1 (14-ac)	*	1304
NAVARRO COUNTY—		
Sharp et al, McDowell 1	*	3160

*Failures; †Junked; ¶Million cu. ft. gas.

Austin.—An auction to lease 12,473 acres of University lands in West Texas is scheduled for March 25 at Austin.

The Board for Leasing University Lands will offer 75 tracts located in Crane, Ector, Andrews, Crockett and Ward counties.

SOUTH TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
MIRANDO DISTRICT		
DUVAL COUNTY—		
Benedum & Trees, Puig 9 (N. Sweden) (perf. 4728-38)	30	5702
Gravis, Frederick 1, Gibson sur	*	1056
Gulf Stream, Hoffman 8-B (Hoffman)	35	2780
Hiawatha, Herberger 4 (Sweden)	125	5905
Humble, Murphy 1 (Labbe)	8	2798
Murphy 2 (Labbe)	*	3213
Rossi 1 (N. Sweden)	275	5364
Magnolia, Labbe 13 (Labbe)	¶15	2876
McCarthy, Placker 1 (N. Sweden)	125	5370
Republic, Buoy 1 (N. Sweden)	500	4787
Rudco, Ellis 1, GC&SF sur 308	*	2970
Southwood, Farias 14, (N. Sweden)	*	5435
McMULLEN COUNTY—		
Argo, Edrington 1-B (Rhodes)	¶10	1764
Mills Bennett, Nueces Land 2, sur 234	*	1522
Chiquita, Lark (Taylor) 5 (Jacob)	35	958
STARR COUNTY—		
Collins, Guerra 1, share 6	*	7009
WEBB COUNTY—		
Magnolia, Sprague-Fee 3, Stephenson sur	*	3148
Moore, Martin 2 (Oilton)	164	1900
ZAPATA COUNTY—		
Gilcrease, Haynes 1-D (Comitas)	36	1115
SAN ANTONIO DISTRICT		
CALDWELL COUNTY—		
Diamond Half, Byrd 1 (Luling)	600	2090
McNeill & Hantho-Nelson, Marino 2 (Lost Mule)	*	1877
Mee & McNeill, Cosey 2 (Luling)	50	2115
Philtop, Dorn 1 (Luling)	493	2093
Pryor, Cardwell 1 (Lytton Springs)	*	1598
Spokane-Oklahoma, Davis 2 (Salt Flats)	60	2564
Wyrick & Linkenboger, Magee 1 (Branyon)	609	2200
WILSON COUNTY—		
Arnold, Black 1, Arocha sur	*	985
CORPUS CHRISTI DISTRICT		
ARANSAS COUNTY—		
Atlantic, Porterfield 9-B (McCampbell)	423	7210
Porterfield 3-D (McCampbell)	*	8005
Buckingham & Graham, Porterfield 5-D, (McCampbell)	950	7135
BROOKS COUNTY—		
Bishop and Woods, Singer 5 (Alta Verde)	*	Icn.
Standard of Texas, Mestina 11 (Ise. 1) (Alta Mesa)	80	2426
CALHOUN COUNTY—		
Buchanan and Blanco, Morris & Dunwoody 6 (Heyser)	700	5498
GOLIAD COUNTY—		
Standard of Texas, Williams 1, Williams sur	*	4960
HIDALGO COUNTY—		
Y and B, Waite 1, share 382	†	6528
NUECES COUNTY—		
Hilburn, Cox and Cryer 2 (Saxet)	475	4170
Houston, Morgan 31 (Saxet)	¶20	4550
REFUGIO COUNTY—		
Morgan & Simmons, Lambert 2-A (Refugio)	275	6339
Quintana, Clement Heard 8-A (Tomoconnor)	975	5921
VICTORIA COUNTY—		
Gulf, Bonner 1, Galban sur (Heyser) (workover)	750	5495

*Failures; †Junked; ¶Million cu. ft. gas.

SOUTHWEST TEXAS

New deep zone found in Saxet Heights.

* * *

Hidalgo test finds deepest South Texas sand.

Corpus Christi.—Saxet Heights, located in the edge of the residential portion of Corpus Christi, Nueces County, again comes in for a hot offsetting campaign on unusually small tracts as a result of the discovery of production 1100 feet deeper than the field's present zone. H. B. Baldwin et al 4 was deepened to 5144½ feet in sand topped at 5137 feet. On a 4½-minute drill stem test, the well showed 410 feet of 35 gravity crude, no water, and 260 pounds working pressure through ¼ and ⅜-inch chokes. Liner was set on bottom and the well was being completed late in the week.

This test originally was completed at 4097 feet, March 6, 1936, flowing 740 barrels per day after pipe was perforated at 4080-90 feet. As production declined, decision was made to deepen as an exploratory hole. The test is 330 feet from the south line and 117 feet from the east line of the 40-acre lease and in block 20, just 660 feet south of the original discovery well of the field, also drilled by J. K. Culton.

This well likely is at the top of the Frio, but some consider it to be in the Heterostegina, commonly known as the Greta sand. Several other wells have been drilled on the structure to depths exceeding this potential producer. In the northwestern portion of the field, Taylor Refining Company drilled on the Country Club Property, while Tom Graham carried Whelan 1 to a lower level. Nash et al's Hatch 1, to the southwest of this test, however, logged the sand at 5168-88 feet and on a drill stem test recovered 450 feet of oily mud with 75 pounds working pressure, possibly sufficient to indicate some sort of well. These tests would suggest that the play will be east, northeast and southeast of the new Culton well, thus throwing the work squarely in the residential sector of Corpus Christi, where many wells have been drilled on sites ranging from a single residential lot up to several acres. The development program likely will be mainly the deepening of present wells, but a few twin operations are evident.

At the same time, Turkey Creek, or West Saxet, on the other side of the big Saxet field, Nueces County, was commencing what gives promise of being a prodigious drilling campaign. L. A. Douglas, discoverer of the field, is under obligation to Phillips Petroleum Company on a first refusal of his holdings surrounding the discovery well. He is to place a price on the properties, then give the Phillips concern five days in which to take or reject the deal. He likely has made his proposal as Phillips officials were in South Texas last week visiting the properties and conferring with him. While it is not known the consideration likely to be involved, it is understood that it will be in the 7 figure bracket, including cash and deferred oil payments.

Another South Texas discovery area was being closely scrutinized as to its importance. W. V. Bowles and Company's D. L. Robertson Estate 1, discovery well of the East Telferner field in Victoria County, has gone almost entirely to salt water. Last reports say that it is flowing about 350,000 cubic feet of gas per day, a large amount of salt water and several barrels of oil. When first completed, the well flowed about 8 barrels of pipe line 27.4 gravity oil per hour through 7/64-inch choke under pressures of 650 pounds on tubing and 1320 pounds on casing. The well originally had drilled to 6138 feet and was sidetracked three times before final completion at 5114 feet. It is likely that the several sidetrack jobs account in part for the water intrusion. Before the salt water broke in, the test reportedly made a large volume of drilling mud. Another test is immediately planned on the structure.

Agua Dulce Extended

In the Agua Dulce sector of Nueces County, Union Producing Company's Galladay 1 was extending production to the east in one of the deeper sands. Casing was landed at 6875 feet, bottom of the hole for a series of tests above, the first to beat 6733-46 feet. Several miles north of production, Union Producing Company's Simmonds 1, north of the field, was below 8000 feet. Over in the southwestern portion of the district, Texon Royalty Company's Sevier 3 was testing a series of sands above 7110 feet via gun perforation.

Ezzell extended

Laredo.—Edwin M. Jones had added several hundred more acres to the producing area of the Ezell Field, McMullen and Live Oak Counties, with Harry Ezzell E-1, Section 24 and 2800 feet southwest of production, cored oil sand at 1524-30 feet and drilled to 1543 feet in shale. The well was in final stages of completion late in the week, apparently good for several hundred barrels.

This shallow Jackson sand field is one of the prolific areas of the Mirando district and thus far has been defined only to the southeast.

North Sweden district, with its multiple well campaign, contiues as the key area of Duval County. Several new locations have been staked for wildcats on trend, their purpose being an attempt to open new areas similar to the present prolific district.

Marine Drilling Starts With Rush in Corpus Christi Area

By EARL S. POST, Staff Writer

MARINE drilling a long predicted type of South Texas operation, will take an immediate place in this area's development program. This became most definite during the week with the first well being started, two more announced and a fourth considered a certainty. They are on a 50-mile trend in the waters of the bays and lagoons east of Corpus Christi.

During the past three years a large amount of geophysical work has been conducted in which some interesting structures have been mapped. It is said that dozens of possible producing areas lie in the shallow and deep waters of this district, and an active drilling program is in prospect.

Major companies and independents have been most active in bidding for these state lands, and purchases of leases in the submerged areas of South Texas during the last several years involve several million dollars.

The new drilling program, however, is something new to South Texas operators, and local drilling concerns undoubtedly will provide new technique in the drilling of some of these holes.

The Pure Oil Company, associated in its deal with Superior Oil Corporation of Delaware, is the leader in this new trend. It has commenced actual operations of dredging a canal 50 feet wide and four feet deep, at low tide, for its State of Texas 1, in Submerged tract No. 522, one mile west of North Bird Islands in Laguna Madre, ten miles south of the Flour Bluff field and in Kleberg County. These companies own a block of 4800 acres, most of which is on a geophysical structure.

The dredging hit its first snag when the dredge being used in making the canal was floated only as far as Don Patricio Causeway in Laguna Madre. The shallow water required pontoons to be fastened to reduce its draw. The canal is being made due west from the location to a point near the mainland, from which it is expected to be routed to Pita Island.

It first had been planned to haul materials to a point near the location, but permission could not be obtained from the King Ranch to cross it. The result is that several miles more canal

must be dug and materials floated down Laguna Madre.

The operation will be on a piling, an island being constructed for the storing of equipment and handling of the rig. All materials will be brought in via barge.

Two More Planned

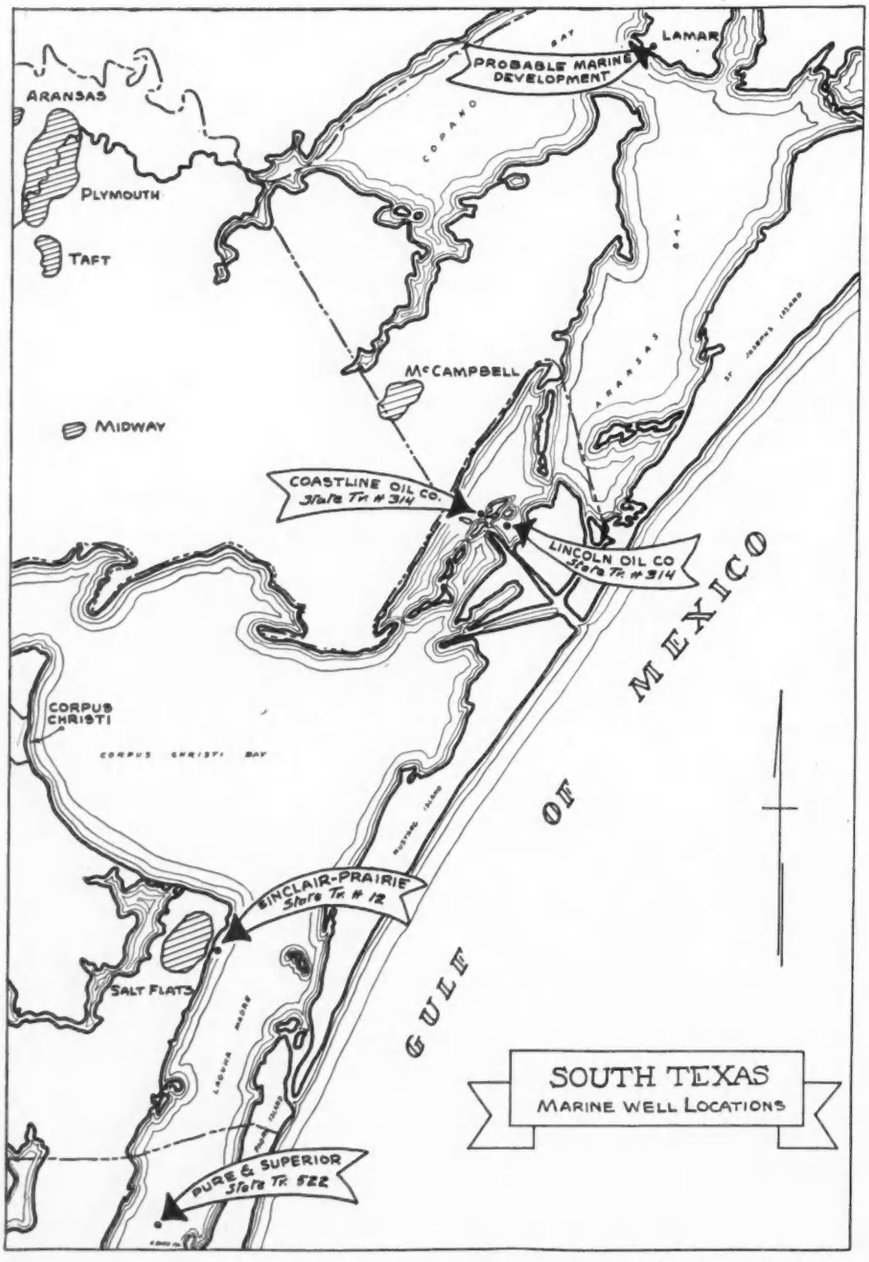
Two more wildcats are to be drilled in the vicinity of Aransas Pass, but across the Aransas County line into Nueces County. Lincoln Oil Company has awarded contract to Trinity Drillers, Inc., of San Antonio for State of Texas 1, on Submerged tract No. 314, about four miles southeast of Aransas Pass in Red Fish Bay. It is to be commenced before January 31. The company will construct an island upon piling and will handle its equipment from a barge. The well will be drilled near one of the world's most famous fishing grounds. This well is in the vicinity of the ship channel, but it is problematical that it will lead to a development which will hinder shipping.

Coast Line Oil Corporation, of Austin, which recently changed its name from Moore Oil Corporation, will drill a deep test on Tract 320, submerged lands, about 2½ miles southeast of Aransas Pass, also in Red Fish Bay of Nueces County. The company has applied to the War Department for the purpose of erecting a derrick and equipment for the drilling of the well.

A fourth test in submerged state lands in Flour Bluff field, Nueces County, is expected to result from the completion of Humble Oil & Refining Company and Barnsdall Oil Company's L. A. Webb 14, in Lot 7, Block 56, which is a direct offset to submerged lands under lease to Sinclair-Prairie Oil Company. The Webb test is drilling and is considered to be within the proven field. Barnsdall Oil Company, Humble Oil & Refining Company, Shell Petroleum Corporation, International Petroleum Corporation and Mallison et al have acreage within the probable producing area of the Flour Bluff field.

Late in the year, Barnsdall Oil Corporation's Lamar prospect in eastern Aransas County, was brought into production when Edwards 1-A was completed through perforations at 7502-30 feet, flowing 73 barrels of 55.9 gravity oil per day through ⅜-inch choke. It likely will lead to the development of this structure, most of which is said to be on submerged lands held by Tide Water Associated Oil Company, Barnsdall Oil Company, Humble Oil & Refining Company and Salt Dome Oil Corporation.

Other such developments are evident on prospects which are under lease from the State of Texas, but the first work will be of vital interest from the standpoint of engineering features.



Where marine drilling is in prospect along the Lower Gulf Coast of Texas.

Texas drilling permits show sharp rise

The Texas Railroad Commission this week granted permits for drilling 353 new wells in Texas, 227 more than were allowed the previous week.

Operators in the East Texas field were granted 64 permits, including 35 in Gregg, 23 in Rusk, five in Upshur and one in Smith County. East Central Texas reported 21 new locations.

There were 39 permits granted in West Texas including 16 in Ector County. The West Central Texas District listed 22 locations.

Operators in the Gulf Coast area reported 69 new locations, including 15 in Harris County, while 50 locations were listed from Southwest Texas, including 13 in Duval and 13 in Webb County.

The North Texas District reported 57 new locations, with 21 in Wichita and 21 in Young County. There were 31 permits granted to operators in the Panhandle.

Well mile east of Pearsall has oil

San Antonio.—Amerada Petroleum Corporation's R. Melms 1, one mile east of the Pearsall field, Frio County, again attracted considerable interest when oil rose 1500 feet in the hole after being deepened to 3938 feet, still in sand topped at 3913 feet. At 3930 feet, it made a dry gas well, oil production coming in the last three feet of sand.

This well indicates that the Navarro sand production in this field will be materially spread to the east, and may result in drilling of wells on acreage owned by other companies than the Amerada concern.

Paul C. Teas and Maryland Corporation's S. E. McKnight 1, Section 23, and northwest of Carrizo Springs

in Dimmitt County, was nearing its completion level, having passed 6000 feet and apparently near the top of the Georgetown. Formations are reported to be showing a sign of material thinning in the lower portion of the hole to further increase interest. Slight oil stains were found just below 5800 feet in the Del Rio.

Guadalupe County's newest crevice strike seems to be certain to be limited to only a few acres. The newest failure is a direct offset to the discovery, while another outpost is ready for abandonment. Dunlap area, located in both Guadalupe and Caldwell counties, another Chalk producing area, is apparently in line for considerable drilling. Five new locations, most of them outposts, were staked during the week.

R. W. Fair was preparing to acidize Medina Irrigated Farms 1, in the southwest portion of Bexar County, in an effort to induce oil flow from the Anachaco limestone at 1150-90 feet. Casing was landed at 1140 feet and the well bailed dry. Fair oil show was found in the limestone and 3000 gallons of acid may be sufficient to bring about production. The test is in Lot 1, Block 55, Medina Farms.

Production at 9000 feet opened in Hidalgo

Mission.—South Texas' first oil field below 9000 'feet was on production January 13, although its initial producer failed to show great promise. Atlantic Refining Company's American Rio Grande Land and Irrigation Company 1 flowed 11 barrels of oil and a large volume of gas on the first 16-hour gauge through ½-inch choke, showing 850 pounds tubing and 1050 pounds casing pressure. The oil is 49 gravity at 64 degrees and corrects to 48.6 gravity.

The test, located in Farm Tract 786, Section 175, opens an entirely new field two miles southwest of Weslaco and near the Mexican border in Hidalgo County. It is in an 8000-acre block held by the discoverer.

This well was drilled to 9180 feet, casing perforated between 8985-9015 feet with several sets of perforations totaling 68 holes.

To the northeast in the La Blanca field, also Hidalgo County, and next contender for deep well records, two wells are running wild, cratering and burning. Davenport and Swallow's C. H. Swallow 1, on the east side of the field, after having been junked and abandoned August 18, 1937, at 7565 feet, blew out January 8, and in several hours was cratering badly and burning. The crater spread to include the replacement hole 50 feet away and it too went out of control. It had been completed October 18, 1937, through perforations at 7908-15 feet as a distillate producer to be the record deep producer for South Texas at that time.

The La Blanca field has been shut in for several weeks due to the high gas/oil ratio of the wells. This order of the Texas Railroad Commission, however, was rescinded after the wells blew out, and late in the week all producers had been reopened.

Tex Bradford and Red Wiggins, followed by H. L. Patton, have failed in all attemps thus far to control the fire of this deep operation.

TEXAS GULF COAST

Jefferson County wildcat opens first Coast field for year.

★ ★ ★

Fairbanks extended by production from new sand.

★ ★ ★

New sand at Palacios yields good flow of distillate.

Houston.—The first oil field in the Texas Gulf Coast for 1938 is Glenn H. McCarthy's Broussard Hebert 1, Cheek area, C. Hillibrandt Survey, Jefferson County. Casing was perforated with 23 shots in Frio formation from 7718 to 7727 feet and 2½-inch tubing was run. The hole was washed for 2½ hours and was opened through a ¼-inch choke. Tubing pressure was 125 pounds and casing pressure 150 pounds. Switched to a ⅛-inch choke on tubing it made 10 barrels of fluid per hour, 50 percent oil and 50 percent wash water with a brackish taste January 13. Tubing pressure then was 875 pounds and casing 975 pounds. The next day the well was making an estimated 15 barrels of fluid per hour, 70 percent oil and 30 percent washwater, tubing pressure 900 pounds and casing 1100 pounds. After the well is cleaned it is expected to make around 20 barrels per hour through a ¼-inch choke. The well had failed to flow from 7730 to 7732 feet, perforations were squeezed with cement and the hole was perforated higher.

Fairbanks Has New Pay and Was Extended Last Week

There has been some discussion as to whether Fairbanks, Harris County, was extended and a new producing horizon found in Mills 1 or it opened a new field. Concensus of opinion is that the semi-wildcat is on the same structure as Fairbanks but a fault cuts the two areas apart, making Mills 1 in the same field as Fairbanks.

Amerada Petroleum Corporation and Stanolind Oil & Gas Company's Mills 1, 2½ miles northeast of Fairbanks, A. Larson Survey, came in January 12 making 21 barrels per hour through ¼-inch choke with a tubing pressure 950 pounds and casing pressure of 1450 pounds, from Lower Cockfield at 6838 to 6852 feet.

It drilled to 6863 feet in salt water sand topped at 6860 feet. This established a new water level for Fairbanks and establishes a good argument that Mills 1 discovered a new field. Mills 1 logged sand showing oil from 6841 to 6860 feet showing from 2 to 5 percent saturation. Casing was run and was perforated with 40 shots at the producing horizon. Washed for 1 hour and 15 minutes, it kicked off.

Mills 1 logged the largest body of sand along the Conroe Trend since the discovery of Conroe. It has a larger body of sand than Tomball field, north of the extension well and which has an estimated ultimate recovery of over 55,000,000 barrels of oil. The operators have over 9000 acres in the area and it is expected that a large drilling campaign will develop.

New Producing Sand at Palacios

A new sand proved productive at Palacios, Matagorda County, last week when Sun Oil Company made a test on Bayshore Farms 1, L. Goodwin Survey, south of production. The well made 490 barrels of high-gravity distillate daily through ¼-inch choke, with a tubing and casing pressure of 2200 pounds. There was no water.

Bayshore 1 was drilled to 11,327 feet where 7-inch casing was set. The hole was plugged back and perforated with 20 shots at 9245 to 9275 feet and when preparing to make a drill-stem test a nipple gave way and the well blew out and caught fire. After burning several days it bridged and a 10-000-pound test Christmas tree was installed.

North of Van Vleck, Matagorda County, Pierce Estate's Fee 1, I & G. N. Survey, plugged back from 7374 feet, after salt water sand was logged, to 6400 feet. The hole will be sidetracked and drilled down to the 6600-foot sand. Top of the salt water sand was encountered at 7370 feet.

The deepest active drilling well in the Texas Gulf Coast is Skelly Oil Company's Cobb B-14, M. Cummins Survey, at Van Vleck. It is drilling below 11,070 feet, and deepest test for the field.

Southeast of production at Pickett Ridge (Kubela), Wharton County, Great Plains Oil Company's Bishkins & Meyers 1, I. & G. N. Section 24, made an estimated 65 barrels of 25-gravity oil daily through ¼-inch choke, with a tubing pressure of 1450 and a casing pressure of 1850 pounds, from Frio at 4579 to 4585 feet. Casing was perforated with 10 shots.

In the Lissie area, Wharton County, Strake Petroleum Corporation's Strunk 1, L. P. Jennings Survey, was drilling shale below 8300 feet at the end of the week and will be carried down to test the Cook Mountain. If production is not found at greater depths, the hole will be plugged back and tested around 6700 and 6900 feet.

South of Blue Ridge and in the Fresno area, Ft. Bend County, Medford & Burke abandoned Woods 1 at 6512 feet

after failing to find anything of importance.

Old Ocean Being Extended Northwest

Old Ocean was being extended northwest last week by Harrison & Abercrombie's Fee 2, Polly & Chance Survey. Casing has been perforated with 19 shots from 10,056 to 10,066 feet and 200 shots from 9990 to 10,000 feet. Fee 2 was drilled to 10,856 feet and 7-inch casing was set below 10,000 feet.

Another producer was completed at Danbury field, Brazoria County, by Rowan Drilling Company and Shell Petroleum Corporation. Jamison 3, H. Austin Survey, made 32 barrels in 10 hours through a 10/64-inch choke with a tubing pressure of 580 pounds and a casing pressure of 400 pounds at 1960 feet. Oil sand was logged at 1947 feet and 7-inch casing was set at 1946 feet. Location has been made for Jamison 4.

Gulf Oil Corporation announced location last week for a 9500-foot test at Cleveland field, Liberty County. Kirby C-21, J. Pleasant Survey, will test the Cook Mountain formations.

On the west flank of Barbers Hill field, Chambers County, Atlantic Refining Company made location for Fisher 1, William Bloodgood Survey. It will be a deep test.

TEXAS GULF COAST Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
AMELIA—		
Humble, Quinn 12	592	6779
ANAHUAC—		
Gulf, Wilcox 8	624	7120
BATSON—		
John Deering, Cruse 5	442	5536
CLINTON—		
Stanolind, Oates 1	88	3835
DANBURY—		
Shell, Jamison 3	72	1960
DICKINSON—		
Humble, Maco Stewart 21-A	116	8777
Pure, S. Hutchins 3-B	510	8120
FRIENDSWOOD—		
Humble, Glover 1	528	6052
HARDIN—		
Strake, Finley 4	*	8010
Finley 5	*	lcn.
Finley 6	*	lcn.
HASTINGS—		
Humble, Schindler 4	648	6080
Pearland Oil Co., Alexander 3	629	6100
Stanolind, Drake 13	616	5775
Kidd 5	598	6080
HIGH ISLAND—		
Stanolind, Cade 2-B	270	5113
HITCHCOCK—		
N. W. Hunter, Stewart 2	*	5702
HOCKLEY—		
Stanolind, Warren Minerals 2	*	7481
MANVEL—		
Texas Co., Belcher B-26	300	5146
PIERCE JUNCTION—		
Gulf, Taylor 39 (wo)	150	3780
SEGNO—		
Humble, Kirby B-7	360	5159
H. H. Weinart & Republic, Whiteside 1	*	6061
SILSBEE—		
Republic, Brooks 27	*	lcn.
Frazier 1	607	6910
SPINDLETOP—		
Unity Oil Co., Daisy Roach 1	540	3510
THOMPSON—		
H. M. Naylor, Gehr 10	432	5407
TOMBALL—		
Humble, Scherer 3	116	5566
Wagner 1	526	5593
TURTLE BAY—		
Stanolind, Cooper Heirs 5	548	6610
WITHERS—		
Texas Co., Pierce Estate C-42	307	5545
TYLER COUNTY—		
Navarro Oil Co., Rice 1, Warren area, B.B.B.&C. sec 11	*	5188
FORT BEND COUNTY—		
Medford & Burke, Woods 1, s of Blue Ridge, Magnolia Place sub	*	6512

*Failures; †Junked; ¶Million cu. ft. gas.

Timbalier Bay well resisting efforts to make flow.

* * *

Another edge sand reported in test drilling at Jennings.

* * *

New shallow sand at Starks shows lighter oil production.

Lake Charles.—Gulf Oil Corporation is preparing to reset screen on State PP 3 at Timbalier Bay, Lafourche Parish, after swabbing failed to make the well flow. The well has been at completion stages for the past several weeks but due to salt water and mechanical difficulties will be reworked. It has been perforated from 6955 to 6963 feet and a 15-minute drill stem test showed 920 feet of oil, 1288 feet of mud, sand, and oil with a 30-pound pressure. After 28½ feet of screen was set, it came in flowing oil and washwater for 40 minutes through a 3/16-inch choke with a tubing pressure of 165 pounds. It then went dead and after washing with oil and swabbing, it still would not flow.

A new producing territory was opened by Union Sulphur Company's Calcasieu National Bank 1, east of Woodlawn, Section 12-9s-8w, Jefferson Davis Parish, last week when the wildcat came in making gas and distillate at 8281 feet. Casing was perforated with 18 holes from 8276 to 8281 feet and showed a shut-in pressure of 3100 pounds. A 12/64-inch bottom-hole choke was set at 4500 feet and production test showed 46 barrels of 55 gravity distillate and 2,500,000 cubic feet of gas daily. The well has been killed and will be reworked.

Southeast of South Roanoke, Jefferson Davis Parish, Continental Oil Company was drilling below 10,850 feet in Fay 1, Section 31-10s-3w. An electrical logging device was run and showed two ohms from 10,097 to 10,108 feet.

New Sand Reported at Jennings

A new sand was reported on the north flank of Jennings, Acadia Parish, last week by Superior Oil Producing Company's J. Clement 1, Section 46-9s-2w. If this well proves productive it will start a drilling campaign for that side of the field and equal to that of a few months back on the south and southwest side.

Ten feet of oil sand was logged from 7046 to 7056 feet. Down to 7324 feet at the end of the week, fishing for stuck drill pipe was in progress. Several other oil sands are reported up the hole.

New Shallow Sand Found at Starks

A new shallow sand was discovered at Starks, Calcasieu Parish, by J. R. Turnbull, in Industrial Lumber Company 3, Section 19-9s-12w. Sand showing oil was logged from 2390 to 2400 feet and a slight show from 2363 to 3490 feet. A drill-stem test from 2390 to 2400 feet showed 345 feet of 28.4 gravity oil in 10 minutes through ¼-inch choke. Seven-inch casing was set at 2387 feet, and at the end of the week the well was washing in. This sand contains a lighter oil than from other sands at Starks.

The second failure for the South Sulphur, Calcasieu Parish, is Union Sulphur Company's American Oil & Sulphur Company 1, Section 16-10s-10w, abandoned at 8002 feet after electrical logging.

In St. Mary Parish, Shell Petroleum Corporation's Barbour 1, Glenwild area, Section 21-15s-12e, showed 55 ohms and 150 milivolts from 10,088 to 10,108 feet when an electrical logging device was run. At the end of the week it was down to 10,517 feet in shale.

Gulf Oil Corporation announced another wildcat location at Lake Borgne, St. Bernard Parish after abandoning State 2 RR, Section 38-14s-15e at 5102 feet. Location for State 3 RR is 16,650

SOUTH LOUISIANA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CAMERON MEADOWS—		
Burton Sutton, School Land 20	300	4086
CHARENTON—		
Pan American, Kern 1-A	*	lcn.
O. J. Semoneaux 1	*	3000
DARROW—		
Humble, Rose 1	720	6940
EAST HACKBERRY—		
Texas Co., State 23-B	380	7520
JENNINGS—		
Jolly Pet. Co., Jennings Heywood 5	*	2046
Shell, Conover Community 3	56	7108
POTASH—		
Humble, Orleans Levee Board 12	*	615
VALENTINE—		
Pan American, Harange 13	627	6138
CALCASIEU PARISH—		
Union Sulphur, American Oil & Sulphur Co. 1, 16-10s-10w	*	8002
ST. BERNARD PARISH—		
Gulf, State 2 RR, Lake Borgne, 38-14s-15e	*	5102

*Failures; †Junked; ¶Million cu. ft. gas.

feet south and 9550 feet east of the northwest corner of Section 5-12s-15e.

Large Wildcat Campaign Started By Shell

Shell Petroleum Corporation has started its large wildcat drilling campaign in South Louisiana by announcing its first wildcat location for the area in 1938. Calcasieu National Bank 1 is 330 feet north and 330 feet east of the SWc SE Section 18-11s-5w. It is understood that the company has a number of tests to drill in the district this year.

Bayou Blue and Choctaw, in Iberville Parish, have wells drilling at advanced depths, searching for new sands. Humble Oil & Refining Company's Schwing Lumber Company 1, Section 67-9s-11e, was down to 6840 feet. At Choctaw, Louisiana Crusader Oil Company's Schwing 1, Section 29-8s-11e, was drilling in shale at 8760 feet after logging 4 feet of sand showing oil at 8633 to 8637 feet.

Shell Petroleum Corporation tested a new sand at Gibson, Terrebonne Parish. Pelican 4, Section 19-17s-15e, cored oil sand at 9070 feet and a 10-minute drill-stem test, after the testing tool had slipped to 9074 feet, showed 32 barrels of oil, ½-barrel of mud, and a 180 pounds pressure. Another test will be made.

Shreveport. — Twenty-three drilling permits were authorized last week in Louisiana by Louisiana Conservation Commission of which 12 were for North Louisiana divided among the following parishes: Caddo, 2 (none in Rodessa); Claiborne, 2, both in Lisbon, and in addition 1 previous permit renewed; Lincoln, 1; DeSoto, 1; Sabine, 2; Webster, 3, all in Cotton Valley; and Winn, 1.

The 11 in South Louisiana were divided among the following parishes: Acadia, 2; Cameron, 2; Jefferson, 1; Jeff Davis, 1; Plaquemines, 3, with an additional renewal; Terrebonne, 1; and St. Martin, 1.

Lisbon extension southwest indicated by showings.

★ ★ ★

Most of Rodessa drilling to be on Texas side.

★ ★ ★

Third Travis Peak well showing at Cotton Valley.

Shreveport.—A three-quarter mile southwest extension of the Lisbon field, Claiborne Parish, appeared likely last week after C. R. Schuster's Sallie Lloyd 1, C S½ SW SW 2-20n-5w, logged 12 feet of saturated basal Glen Rose lime, 7 feet of it well-saturated, and prepared to run final casing string. Total depth is 5271 feet. Elevation is 206 feet.

Union Producing Company is preparing to make location for a lower Marine test in Section 18-21n-4w, Claiborne Parish, 3 miles north of Lisbon production on a block it has held since it drilled Meadows 1, Section 13-21n-4w, to 6712 feet in 1934. This test is much higher structurally than Lisbon wells and has led many to believe that Lisbon production is on the flanks of this structure. Location will be ½-mile east of the old abandoned test which has seeped oil since abandonment, the origin of the oil being undetermined.

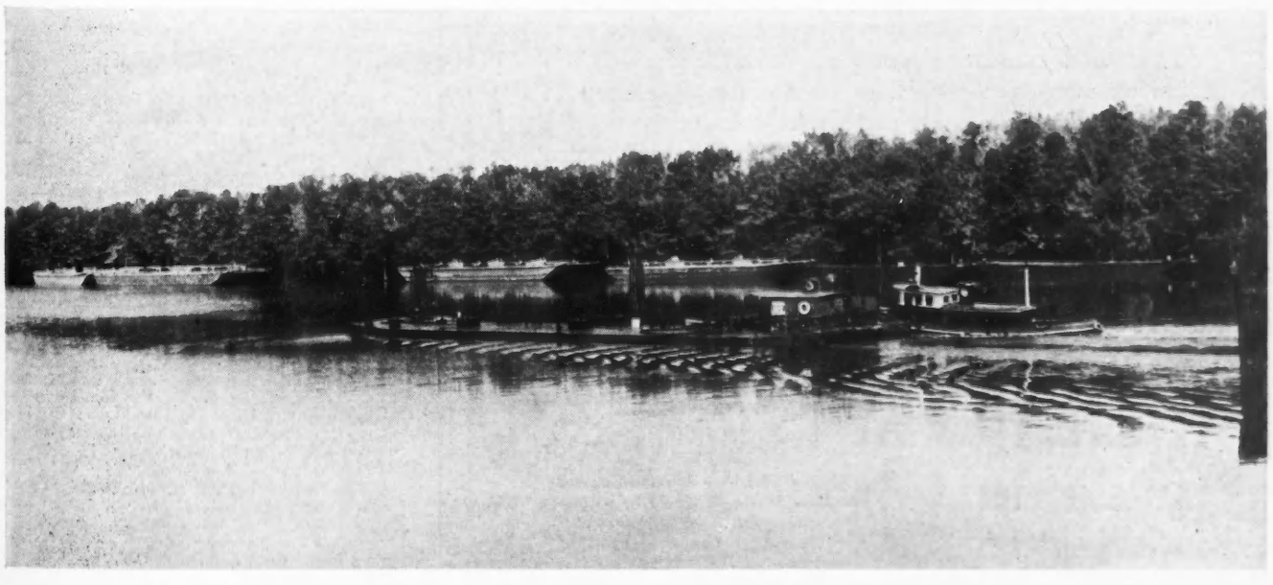
Production limits in the southeast part of Lisbon, Lincoln Parish, were extended one location east last week when Magnolia Petroleum Company completed Corbin B-2, C S½ NW NW 5-20n-4w, at 5264 feet, flowing 164 barrels in the first 4 hours through ½-inch tubing choke.

Most Rodessa Activity in Texas

Indicative of the activity that may be expected by operating companies in the Jefferson and Lodi ends of the Rodessa area in Marion County, Texas, during the coming year is the fact that Arkansas Louisiana Gas Company (Cities Service) has signed contract with Thomasson Drilling Company for 25 wells in 1938 for that part of the field. The tests are to be drilled on a turnkey basis.

Location for the first of these tests was made at R. E. Key 1, (143-acre tract), Harris Survey, 2 miles southwest of this company's Neilon 1, which recently was completed to extend production at that end of the field to the south.

From present indications the bulk of activity for Rodessa will be in Marion County during 1938. A hearing was held at Jefferson January 14 to set rules and regulations, and also an allocation for the Jefferson end of the field, tentatively divorced from Ro-



Tug carrying a barge of oil down the Calcasieu River near Lake Charles

dessa proper, a separation somewhat clouded by a recent connecting well between Jefferson production and the Lodi nose.

Heyser, Heard & Clardy's L. Henderson 2, R. Bennington Survey, latest completion at Jefferson, gauged 421 barrels of oil in 24 hours with a gas/oil ratio of 415 to 1. It was completed flowing 25 barrels per hour through ¼-inch choke. With elevation of 255 feet, it logged the Henderson sand at 6003, and the Gloyd at 6020 feet. Total depth is 6048 feet.

Five new wells were completed on the Louisiana side of Rodessa last week and 2 were added in Miller County, Arkansas, to make a total of 8 for the week to bring the field's grand total to 895 wells.

Travis Peak Show at Cotton Valley

Possibility of a third oil producer from the Travis Peak horizon of the Cotton Valley field, Webster Parish, appeared assured last week when A. G. Oliphant's Hodges 1, NE NW 34-21n-10w, logged 8 feet of Travis Peak formation showing oil from 5632 to 5640 feet. After running electrical tester operators shut down to determine whether to try for completion there or continue to the lower Marine below 8000 feet.

This showing of oil in the Travis Peak came on the heels of W. G. Ray Drilling Company's Stewart 1, C SW NE 33-21n-10w, completed the week before flowing 35 barrels per hour through ¼-inch tubing choke. It was the second Travis Peak well of the field.

Ohio Oil Company's Holloway 6, NE SW 23-21n-10w, discovery well of the Travis Peak, has produced approximately 250,000 barrels of oil since its completion in August, 1936. Travis Peak in most tests at Cotton Valley is too tight to produce but the last two tests have been in a southwest line from Holloway 6.

Farm Out Cotton Valley Gas

Because of the fact that it has no marketing outlet for gas, Standard Oil Company of Louisiana will farm out its Cotton Valley acreage on which it has completed two gas-distillate wells. Although lacking official confirmation as to who will get the acreage, it is reported it will be Union Producing Company, which also operates in the field.

Union Producing Company has acquired the gas rights on a block of several thousand acres centering around Section 15-16n-10w, Bienville Parish, from DeSoto Oil & Gas Company (R. O. Roy). It also secures in the purchase two gas-distillate wells thereon. DeSoto Oil & Gas Company retains the oil rights.

W. E. Hall and associates of Shreveport are arranging to deepen McDowell and associates' Locke 1, Section 9-15n-10w, Bienville Parish, to the Glen Rose.

Companies owning spreads in the block around Joe Modisett and Standard Oil Company of Louisiana's Frost Lumber Company 1, Section 14-21n-1e, Union Parish, shut down at contract depth of 7010 feet in the lower Marine, logged at 6161 feet, are being asked to contribute their pro-rata share of the needed funds to deepen this test to 9100 feet.

On a secondary "high" east of the Monroe Uplift, W. J. Furlong and associates' E. M. Clark 1, Section 10-20-7e, Morehouse Parish, is drilling fossiliferous lime and shale at 5440 feet, definitely in lower Marine. The Glen Rose section did not appear in this test.

Magnolia Petroleum Company's Secton 1, Section 32-23n-9w, lower Marine test in the shallow Shongaloo gas field, Webster Parish, with elevation of 225 feet, reached base of massive anhydrite at 4558 feet and lower anhydrite stringer at 4627-52 feet, and is drilling below 5000 feet.

Seaboard Oil Corporation has assigned to H. L. Hunt a half interest in several tracts of wildcat acreage it has in Winn and Natchitoches Parishes on the southeast flank of the Sabine Uplift.

Curative work on the block around E. T. Oakes, H. D. Easton and associates' Griggs 1, C SW 36-18n-1w, which recently logged good porosity and resistivity in basal Glen Rose from 5932 to 5941 feet, continued to cause postponement of perforating casing and testing.

NORTH LOUISIANA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CADDO PARISH (Rodessa)—		
Union Prod. Co., Starcke 7, 8-23n-16w	225	6000
R. G. Trippett, Parker 1, 2-23n-16w	¶1 & 26	6020
Vaughn Prod. Co., Reeves 1, 3-23n-16w	960	5983
CLAIBORNE PARISH (Lisbon)—		
E. W. Gill et al, S. M. English 2, 29-21n-4w	1750	5168
LINCOLN PARISH (Lisbon)—		
Magnolia, Corbin B-2, 5-20n-4w	960	5264
WEBSTER PARISH (Cotton Valley)—		
Magnolia, Crichton Hrs. 1, 33-21n-10w	600	8332
CADDO PARISH (Rodessa)—		
Standard, Terry 1, 2-23n-16w	315	5992
Vaughn Prod. Co., Sartor 1, 3-23n-16w	1200	6026
CLAIBORNE PARISH (Lisbon)—		
A. O. Olsen, Patton A-6, 30-21n-4w	1200	5141
Sloan & Zook, Patton 5, 1-20n-5w	1152	5371
J. C. Tippett Drlg. Co., Aycock B-1, 1-20n-5w	1320	5359
CLAIBORNE PARISH (Sugar Creek)—		
Union Prod. Co., Stephenson-Kirkpatrick 1 1-19n-6w	¶3½	5741
CADDO PARISH (Pine Island)—		
A. R. Hancock, Helpman 2, 16-21n-16w	*	1018
R. E. Kennedy, George Wells 1, 10-21n-15w	27	1730
CADDO PARISH (Dixie)—		
D. C. R. Oil Co., W. L. Sibley 2, 15-19n-14w	25	2494
R. G. Trippett & DCR Oil Co., School Board 5, 16-19n-14w	60	2460
CADDO PARISH (Caspiana)—		
Prairie River Synd., Hutchinson 1, 15-15n-12w	*	9141
WEBSTER PARISH (Cotton Valley)—		
V. L. Foster, Mixon 2, 21-21n-10w	720	8339
W. G. Ray Drlg. Co., Stewart 1, 33-21n-10w	840	5807
Union Prod. Co., Tillman 6, 28-21n-10w	445	8290

*Failures; †Junked; ¶Million cu. ft. gas.

Nice New Leaves to Turn Over . . .

If it isn't too late in January to talk about turning over a new leaf, consider the ones in our ledgers. We'd like to turn one over and write your name at the top. It would have certain advantages for you and for us. We sell everything it takes to drill or produce a well in this area with neatness and dispatch. Of course you can get along without us. For that matter you can get along without an automobile—but who wants to? They get you around so conveniently.

PELICAN WELL TOOL & SUPPLY CO.

SHREVEPORT LOUISIANA

PELCO

Lake Charles—Houma—Converse
New Iberia—Rodessa—Monroe
Cotton Valley—Greggton
Houston

EASTERN FIELDS

Tennessee St. Peter oil showing arouses much interest.

★ ★ ★

Indiana wildcat work spreading from Illinois activity.

Pittsburgh.—Reports of a successful St. Peters sandstone completion in North-central Tennessee is causing unusual interest among Southwest Indiana oil men. The Tennessee test is said to have topped the St. Peters at 1394 feet with 8 feet of saturation, and to yield 30 barrels daily. Considered generally by geologists as a "water sand" in this area, the St. Peters correlates with the Wilcox sand in Oklahoma. It is believed to be at about 6000 feet and may be the destination of several Southwestern Indiana and Southern Illinois tests this spring.

Most persistent rumor accompanying news of the Tennessee strike is that Strauss et al's Robeson 1, Section 16-3n-10w, Allison Township, Lawrence County, just across the Wabash river from Vincennes on the Illinois side, will be re-opened and continued to the St. Peters. It was reported completed as a dry hole at 3302 feet late in November. The Robeson test has provided the most accurate deep-sand logging of any well drilled in the area and was carried through the Niagara sand.

Indiana will see extensive wildcat activity during the coming season as development spreads eastward from the Illinois basin area. Preliminary work has indicated that much of the exploration work will be in Knox and adjoining counties. The only present active Knox County test is that of Worthington Petroleum Corporation on the John Ford Estate, Section 4-5n-7w, Vigo Township, drilling at 1820 feet.

Four completions were recorded in the New York-Pennsylvania Oriskany gas area, the largest of which was the twentieth successful consecutive test in the new Woodhul Township field of Steuben County, New York. Southwestern Development Company's Earl Brown 1 topped the Oriskany at 3972 feet and had an initial open flow of 15,000,000 cubic feet a day when bottomed at 3979 feet. Initial rock pressure was 1440 fet and the first show of gas was found 1 foot in the sand. New York State Natural Gas Company completed A. D. Marble 1 at 5075 feet with an initial open flow of 8,200,000 cubic feet a day, and A. Schofield 2 at 4976 feet with an initial open flow of 7,300,000 cubic feet. Both tests are in Harrison Township, Potter County, Pennsylvania. Also on the Pennsylvania side, Kane Industrial Gas Company added to the list of Warren County dry holes with Government Surface Lot 515, Watson Township, which was abandoned at 4435 feet. Gas gauging 75,000 cubic feet was found in the 1-foot deep Oriskany, topped at 4330 feet.

Drilling activity in the old Allegany field, New York, increased slightly during the past month, 47 tests being active at the present time. Operators and the number of tests drilling are: A. C. A. Oil Corporation 1, Willets Estate & Paul 2, Albert Oil Corporation 1, Andrews Brothers Oil Company 1, Bradford Producing Company 2, Bradley Producing Corporation 2, R. J. Dermitt 1, Chris Oil Company 1, Allentown Oil Company 1, Messer Oil Company 2, Moore Producing Corporation 1, Porge Oil Company 1, Pure Penn Oil Company 1, Sloan & Zook 3, Tress Oil Company 1, Vossler Brothers 2, McEben Wood Oil Company 2, Penn Petroleum Company 1, W. H. Patterson 1, Vossler Oil Company 1, B. & S. Oil Company 1, W. E. Sawyer & Sons 1, Carl Oil Company 1, John Cochran 1, Sawyer & DeFusto 1, Sawyer & Newton 1, A. L. Shaner 1, Tress Oil Company 1, Trio Oil Company 1, B. & O. Oil Company 1, Taylor Oil Company 1, N. V. V. Franchot 2, Homestead Oil Company 1, LaMont Oil Company 2, Moore & Repp 1, Messer Oil Company 2.

In McLean County, Kentucky, the deep test of South Penn Oil Company on the Mrs. Rena Brown tract, Island District, failed to improve after treatment with 1000 gallons of acid and was abandoned. An oil showing was encountered at 2082-84 feet and the test bottomed at 3817 feet.

EASTERN FIELDS Completions

OHIO

Company, Well and Location	Init. Prod. Bbls.	Depth
ATHENS COUNTY—		
Fairfield Gas Co., Varner & Hughes 4	¶.45	1242
BELMONT COUNTY—		
Huntsman & Peters, Ackerman 1	1	1965
GUERNSEY COUNTY—		
Jones & Jewell, Combs 1	*	1335
KNOX COUNTY—		
Preston Oil Co., Sidle 1	5	2810
LICKING COUNTY—		
G. H. Long, Varner 5	70	3037
Stricker & Armbuster, Stricker & Bucey 1	*	690
MEIGS COUNTY—		
Ruben et al, Wolfe 1	*	732
Ohio F. G. Co., Moss 1	*	2077
MONROE COUNTY—		
Graham et al, Scott	2	1429
MORGAN COUNTY—		
O. G. Dunn, Dale 239	¼	77
Dale 238	*	107
Portage Prod., Inc., White 3	*	4100
MUSKINGUM COUNTY—		
Eagan et al, Baughman 1	*	880
Wehrle Co., Northup 1	*	3215
PUTNAM COUNTY—		
Fritz Oil Co., Fairchilds 1	35	1360
SUMMITT COUNTY—		
East Ohio Gas Co., Hartong 1	¶.68	4325
TUSCARAWAS COUNTY—		
Natural Gas Co. of W. Va., Camp 1	¶.55	4670
WASHINGTON COUNTY—		
R. L. Hanlon, Arnold	3	321
M. Anderson, Greenless 1	¶.07	1380
F. M. Russell, Lorentz 5	*	700
Walker et al, Sheets 47	*	162

WEST VIRGINIA

Company, Well and Location	Init. Prod. Bbls.	Depth
BOONE COUNTY—		
Owens-Illinois Glass Co., Petonia 32	¶	5280
BRAXTON COUNTY—		
Pittsburgh & W. Va. Gas Co., Howell 7628	¶.89	2265
CALHOUN COUNTY—		
F. F. McIntosh, Lynch 1	¶.02	1858
GILMER COUNTY—		
E. L. Bush, Simmons 1	¶1.48	1595
Hope Nat. Gas Co., Gainer 7785	¶.24	2204
KANAWHA COUNTY—		
Trenton Gas Co., Campbell	¶8.62	5024
United Carbon Co., Eagan 1	¶7.00	4751
W. Va. Gas Corp., Legg	¶2.00	5050
Columbian Carbon Co., Hughart	¶1.00	5200
S. B. Avis, Kanawha Valley Bank Co. 7	¶	5040
LINCOLN COUNTY—		
United F. G. Co., Lincoln Land Asso. 2046	¶.07	1465
NICHOLAS COUNTY—		
Hamilton Gas Co., Kinney & Hawkins	¶.76	2265
RITCHIE COUNTY—		
W. H. Mossor, Prather 1	¶.31	1470
Carnegie Nat. Gas Co., Dodson 2	*	2556
ROANE COUNTY—		
Reedy O&G Co., Miller 3	*	1800
TYLER COUNTY—		
Wirhart et al, Bell 1	*	1723
UPSHUR COUNTY—		
Central O&G Co., Long 2	¶1.00	1650
WAYNE COUNTY—		
Owens-Illinois Glass Co., Adkins 1	¶.40	3333
WETZEL COUNTY—		
Carnegie Nat. Gas Co., Kennedy 2	¶.05	2232
WIRT COUNTY—		
Carnegie Nat. Gas Co., Kidwell 3	1	2750

KENTUCKY

Company, Well and Location	Init. Prod. Bbls.	Depth
FLOYD COUNTY—		
Kentucky-W. Va. Gas Co., Layne 558	¶.43	2687
McLEAN COUNTY—		
South Penn Oil Co., Brown 1	*	3817
Marhill O&G Co., Wood 1	*	1502
OHIO COUNTY—		
Rex-Pyramid Oil Co., Stinnett 16	15	....
I. W. Wilson, Hudson 3	2	....
Scholl et al, Farmer 3	¶.70	734
Hall & Booth, Helm 1	¶.25	897
Snowden & McSweeney, Howard Hrs. 30	*	....
Teller et al, Jewell 1	*	823
POWELL COUNTY—		
Agatha Wireman, Townsend 23	5	750

INDIANA

Company, Well and Location	Init. Prod. Bbls.	Depth
GIBSON COUNTY—		
Midwest Dev. Corp., Potter et al 1	*	446
HANCOCK COUNTY—		
Eastern Indiana Gas Co., Boucher & Wittman 1	¶	925
PERRY COUNTY—		
C. E. Dice, Dixon 3	5	347
SPENCER COUNTY—		
Staves Drlg. Co., Bretz Hrs. 1	*	1416
SULLIVAN COUNTY—		
Dome Gas Co., Marts 5	¶	470
Sluder 2	¶	711

PENNSYLVANIA

Company, Well and Location	Init. Prod. Bbls.	Depth
GREENE COUNTY—		
Manufacturers L&H Co., Ross 3557	¶.48	2170
Fox & Frye, Lohr	¶.37	3050
POTTER COUNTY—		
New York State Nat. Gas Co., Marble 1	¶8.20	5075
Schofield 2	¶7.30	4976
WARREN COUNTY—		
Kane Ind. Gas Co., Government Surface Lot 515	*	4435
WASHINGTON COUNTY—		
Carnegie Nat. Gas Co., Reynolds	¶.04	2615
Pethtel, Milliken et al, Campbell 1	¶.04	1405

NEW YORK

Company, Well and Location	Init. Prod. Bbls.	Depth
STEUBEN COUNTY—		
Southwestern Dev. Co., Brown 1	¶15.00	3979

*Failures; †Junked; ¶Million cu. ft. gas.

ILLINOIS DEVELOPMENTS

New pool in Wayne County of undetermined importance.

* * *

Jasper County wildcat projected to go 4500-5000 feet.

Olney, Ill.—The Texas Company's Silverman 1, Section 16-3s-7e, Big Mound Township, Wayne County, appears to be a pool opener, but its value and effect on future development in the area remained in doubt last mid-week. Heralded as the biggest test outside of the Clay-Richmond County area when swabbed in January 7 and having a flow the first hour of 24 barrels with an increase in volume during the succeeding hours which indicated production of 600 barrels a day, the wildcat flowed only 5 barrels an hour after the top oil was taken off. Acid treatment is being given. Casing of the well, which is The Texas Company's first in the Illinois coal basin area, was delayed by bad roads, but casing was finally moved in by trucks pulled by two large crawler tractors. The company has 6000 acres under lease in the area, and if the test comes near expectations and development warrants, a pipe line to the main line of the Southern Railroad 6 miles to the north will be laid.

Good for 500 Barrels

S. Hollis' William Haarman 1, Section 32-8n-6e, Effingham County, reported an oil saturation in St. Louis limestone at 2670 feet which some observers said would be capable of producing 500 barrels daily. Located a mile southwest of Effingham, it is ¾-mile southeast of the Joseph Haarman farm where Harry Hazelett drilled two dry holes several months ago. Cable tools are being moved in to complete, while Hazelett is considering re-opening one of the Joseph Haarman tests to resume drilling.

Less than a mile north of here, Bur Kan Drilling Company's R. C. Allen 1, Section 27-4n-10e, Olney Township, Richland County, found 5 feet of porous oil saturation between 3034 and 3039 feet. Casing was being set, to be followed by a production test when the cement had hardened. Tanks and a separator were to be moved to location late last week. The strike adds impetus to play started in the area last month by Frost et al's Farris 1, Section 18-3n-10e, which has been pumping a little over 200 barrels daily. A larger pump which was expected to boost production was installed last week. About midway between the Allen 1 and Farris 1, Section 5-3n-10e, Papoose Oil Company was to spud Edith Lynch 1 late last week. If commercial production is attained at this test, it will result in development activity not unlike that which marked discovery of crude at the village limits of Noble, where new tests are being started as rapidly as drilling wells are completed. A count made early this month showed 35 derricks towering over Noble, of which 18 represented wells already producing. First well was brought in October 6.

Hoffman & Byrd, who have encountered four oil showings with King 1, Section 20-8n-10e, Crooked Creek Township, Jasper County, and are now below 3000 feet, announced last week that the test will be carried to the Trenton rock formation, estimated at between 4500 and 5000 feet. The first deep test in Jasper County, if commercial production is not obtained in the lower horizons, it will be plugged back in an attempt to bring in the shallower showings.

Clay County Wildcat

Wiser Oil Company's Irwin 1, Section 12-2n-7e, in wildcat territory of Clay County, was given a 1000-gallon acid treatment last week in an effort to increase the flow of oil from saturation found at 3066 feet without boosting the flow of water. Operators planned to give a 3000-gallon dose if the wildcat responds favorably to the smaller treatment. After showing water a week ago, it was swabbed and as a result the water was exhausted in a few hours and a considerable quantity of oil recovered. Bottomed at 3094 feet, it found the top of the McCloskey at 3057 feet. Surface elevation is 464 feet.

Salt water intruded in Hays & Myer's Willard 1, Section 25-1s-13w, Mt. Carmel Township, causing abandonment of the Wabash County test after an oil showing was registered at 2563 feet. It was the first attempt to obtain production from the McCloskey formation in that area.

ILLINOIS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CLAY COUNTY—		
C. H. C. Oil Co., (Case et al) Duff 1	*	3075
CLINTON COUNTY—		
Hawley & Willis, Meux 1	*	1188
MARION COUNTY—		
Adams O&G Co., Wasem 11A	60	1436
Bonnie O&G Co., Daniels 1	*	2801
Dill & Cochran, Logan 1	*	1437
RICHLAND COUNTY—		
Mammoth O&R Co., Brace-McCauley 1	140	3046
Morrison & German, Montgomery 1	140	3000
Pure, Correll 2	73	3010
WAYNE COUNTY—		
Midwest Dev. Co., Madden 1	*	3216
WABASH COUNTY—		
Hayes & Myer, Willard 1	*	2580

*Failures; †Junked; ¶Million cu. ft. gas.

North Dakota test prepares to go to 9000 feet

Minot, N. D.—Hard shale and rock formations were encountered last week by Standard Oil Company of California's deep wildcat on the Nels Kamp farm, Williams County, as the drill was biting below 6520 feet. Drilling will continue somewhat farther before stopped to run casing. A total of 9000 feet of casing has been taken to the site, indicating the test will be carried well below its present depth.

A third 375-horsepower boiler was being connected up last week to supplement drilling power from two similar units. Meanwhile, a diminishing water supply is becoming a serious problem. A pond nearby has been pumped dry and two nearby water wells are hard pressed to provide the amount necessary to carry on operations at top speed. Manning & Martin are the drilling contractors.

MICHIGAN FIELDS

Bay County wildcat has three saturated sands.

Mt. Pleasant, Mich.—First discovery well in 1938 in Michigan may be credited to Gulf Refining Company's Marston 1, SE SW NE 1-14n-4e, Bay County. As yet not definitely established as a commercial well, the Dundee test is to be plugged back from 2956 feet to approximately 2870-2900 feet and acidized to three distinct saturated Dundee lime zones. Top of the Dundee was checked at 2735 feet. This test is 10 miles north of Bay City, and within 3 miles of the west edge of Saginaw Bay. The block of several thousand acres was core tested for several months prior to drilling.

Interest in Michigan this week was divided between several wildcat tests either drilling objective formations or reaching depths expected to give important upper-bed markers.

Cryden & Rowmor Company's Smith 1, SW SE NE 35-15n-5w, Isabella County, 2 miles south of a small Monroe lime producer drilled late in 1937 by Boston Oil & Gas Company, was drilling shale at 3686 feet on January 11, and operators expected to have a casing seat by week end for a Monroe lime test.

Two wildcats, one in Clare and the other in Crawford County, are scheduled to be junked. Sun Oil Company's Weldon 1, NE NE SE 14-19n-3w, Clare County, is shut down at 3920 feet with Dundee black water. Dome Oil Development Company is shut down at 3454 feet (Dundee 3187 feet) with water in Lundgren 1, 33-25n-3w, Crawford County, after drilling through the Dundee and Upper Monroe.

Eighteen completions were reported for the week, all in previously-proven districts. Thirteen of the completions, all in Dundee

lime, were in the Buckeye district, Gladwin County.

The 15-cent price reduction posted on January 5 by Pure Transportation Company, and followed by all other major carriers except Simrall Pipe Line Company, was made unanimous January 8, when the latter met the reduction.

Prices now posted for major districts are as follows: Buckeye grade $1.09½; Midland-Isabella grade $1.12; Ogemaw-Clayton grade .80 and Adams grade .84 per barrel.

Proration of 75 barrels per well is still technically in effect in the Buckeye field, Gladwin County, a volutary program instituted in early 1937. However, production statistics released this week indicate that the South Buckeye field is not making allowables in most cases; that the North field is still capable of producing considerably over 75 barrels per well.

Bay Pipe Line Company expects to place its new 33-mile 6-inch pipe line in service early in February. The field terminal is in Buckeye and the outlet terminal at Bay City, where deliveries will be made by rail and tanker during the navigation season. Completion of this line is expected to enable higher withdrawal out of Buckeye, which averaged better than 26,000 barrels daily in December.

December production figures released by the Oil & Gas Association of Michigan showed the daily average runs for the state as 51,389 barrels, as against 52,406 barrels in November. Total December production was set at 1,593,085 barrels to bring the 1937 total output to 16,401,600 barrels, or approximately 600,000 barrels greater than the previous record of 15,775,000 barrels established in 1935. Michigan produced about 12,000,000 barrels last year.

The Buckeye field, Gladwin County, discovered in the fall of 1936 but not developed until this year, produced 828,662 barrels in December, or more than 50 percent of the state total.

MICHIGAN

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ALLEGAN COUNTY—		
Muskegon Dev. Co., Brower 1, ne se sw 17-4n-13w	170	1635
Mich. Devonian, Huzinga 2, ne sw nw 22-4n-13w	600	1581
ARENAC COUNTY—		
J. C. Ross, Southworth 1, ne nw ne 15-20n-4e	¶5	1241
GLADWIN COUNTY—		
Sun, Rabb 10, ne sw ne 10-18n-1w	150	3650
Rabb 12, ne se nw 10-18n-1w	300	3655
S. & S. Oil Co., Fitzwater 3, nw se ne 26-18n-1w	420	3574
Bell & Mark, Arkwright 3, nw sw ne 35-18n-1w	125	3594
Victory Pet. Co., Maier 1, ne se nw 35-18n-1w	50	3590
Gordon Oil Co., State D2, ne ne nw 35-18n-1w	145	3586
C. W. Teater, Domokos 3, sw nw nw 11-18n-1w	235	3633
Domokos 5, ne nw nw 11-18n-1w	250	3640
Cryden & Rowmor, Shaffer 7, ne se sw 12-18n-1w	890	3632
American Drlg. Co., Soldan 5, ne nw se 12-18n-1w	850	3628
Jacob Beck, Beuhler 2, nw sw sw 24-18n-1w	130	3597
C. H. Bell, McMahon 3, nw nw sw 25-18n-1w	70	3597
Turner Pet. Co.'s McMahon 3, sw se sw 36-18n-1w	10	3598
OGEMAW COUNTY—		
Weber Oil Co., Hart 1, nw sw nw 34-22n-2e	128	2678
Fisher 2, sw sw nw 35-22n-2e	85	2655

*Failures; †Junked; ¶Million cu. ft. gas.

ROCKY MOUNTAIN FIELDS

Early indications show 1938 a busy year of drilling.

★ ★ ★

Additional outlet for production to be provided by plants.

Casper, Wyo.—Early outlook for the 1938 drilling season in the Rocky Mountain district holds considerable promise with advances made in several important fields during the early weeks of the year and several wells at critical stages. The Osage field, in Weston County, northeastern Wyoming, reports preliminary work going on which points to a highly-active year after a sub-normal year for drilling activity during 1937. Despite this drop in development production for this field showed a decided increase over 1936 levels and an even better marketing outlet, resulting in reduction of crude stocks in the field to mere working levels.

Revival of drilling activity is seen for the field this year as operators work to build up a production schedule which will match demands of refiners. A large percentage of the crude from the field is marketed to local refineries which are building new units and expanding sufficiently to care for an even greater share of the crude from the field than has heretofore been the case.

Lessening of the danger of continued overproduction beyond immediate market possibilities in the northern Montana district was seen this week as crude contracts for the establishment of a 5000-barrel plant in the Cut Bank area were being circulated in that field. The crude contracts were being handled under the name of an agent but credible rumors state that Globe Oil & Refining Company of Tulsa was backing the move and plans erection of a plant in the near future.

Expanding markets for the area have already been assured by the starting of work on a 1500-barrel refinery at Pocatillo, Idaho, which will be operated on Cut Bank crude and the progress of work on a 1200-barrel plant at Kalispell. These plants will take all but about 4000 barrels of the present Cut Bank potential production and the addition of the proposed 5000-barrel plant will provide a market for all the available production in the field. Prices are reported to be based on Mid-Continent scales for crudes of equal gravity.

Lance Creek Most Active

The Lance Creek field, in Niobrara County, eastern Wyoming, continues to be the most active field in the state with 10 active wells reported. Ohio Oil Company completed 1 well this week and has another testing production in the Basal Sundance sand at 4120 feet. Converse Sheep Company 8, CNW SE SW 32-36n-65w, tested 8,000,000 cubic feet of gas daily at 3723-49 feet. Hole will probably be drilled to the Minnelusa formation for final completion.

Continental Oil Company is acidizing and testing Schuricht 6-B, SW SW SE 6-35n-65w, in the Lance Creek field. Hole was treated with 4000 gallons of acid and operators are swabbing to test. Total depth is 5261 feet in Minnelusa. Apex 1 Account 3, SE NE 34-36n-65w, Lance Creek, set whipstock on top of lost drill pipe at 3456 feet and is drilling by tools. Former depth of hole was 5479 feet in Minnelusa.

Mackinnie Oil & Drilling Company is testing Thompson No. 2, NE NE NW 7-35n-65w, and preliminary shows indicate it will make a good producer and will extend the limits of the Minnelusa another ½ mile west. Indications in this well greatly improve the out-

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look for drilling activities on the west flank of the field. The well is reported showing 704 barrels of oil in 11 hours from Minnelusa in which it bottoms at 5294 feet. Thompson 3, NWC NE 7-35n-65w, is waiting on rig from No. 2.

Argo Oil Corporation staked its second location in the field within the past 2 weeks this week, Ford 6, SW NW 32-36n-65w, for which rig is building. Ford 5, C SW SE 33-36n-65w, for which location was released a week ago, dug cellar and pits and is waiting on equipment.

The southern sector of the state also has several wells at critical stages, the Ohio Oil Company preparing to complete Harrison-Cooper 13, SE SW 35-20n-78w, in the Rock River field, Carbon County. It is bottomed in Sundance sand, and is swabbing and testing at 3037-3157 feet, total depth.

MOUNTAIN STATES Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
WYOMING		
CARBON COUNTY (Bunker Hill)—		
Ohio, Brimmer 1, cne nw 32-27n-89	¶1.5	1478
ALBANY COUNTY (Quealy Dome Field)—		
California Co., Holst 11, cne sw ne 13-17n-77w	480	3366
CONVERSE COUNTY (Shawnee Creek Field)—		
New Era Fuel Corp., Brown-Government 1, nwc sw nw 25-32n-69w	¶3	525
NIOBRARA COUNTY (Lance Creek Field)—		
J. M. Huber Corp., Joss 3, ne ne sw 6-35n-65w	960	3978
MONTANA		
GLACIER COUNTY (Cut Bank Field)—		
Vern Johnson, Tribal 1, cse ne 35-33n-6w	*	2900
Glacier Prod. Co., Reynolds 1, cwl sw 15-36n-5w	*	2840

*Failures; †Junked; ¶Million cu. ft. gas.

In the Lost Soldier field, Sweetwater County, the Sinclair-Wyoming Oil Company's Lost Soldier 77, cored into saturated Tensleep sand at 3991 feet this week and stopped with hole bottomed at 3994 feet in saturation. Production casing of 7-inch pipe has been cemented and operators are drilling plug to test.

After drilling to 6918 feet in the Sundance sand, the joint well of The Texas Company and The California Company, Freeman-Government 1, SW SE NW 35-3n-94w, on the Wilson Creek structure, in Rio Blanco County, Colorado, is plugging back to shut off water. It found 74 feet of solid saturation in the Sundance formation topped at 6824-98 feet but will be produced for the present from the Morrison formation in which the original test was run. Casing will be cemented on top of the Sundance and the well produced through casing perforations opposite the Morrison.

Baxter Basin Active

Considerable activity is still going on in the Baxter Basin region of southwestern Wyoming. Mountain Fuel Supply Company is preparing to drill ahead with E. S. Lauzer 1, CNW NW NW 30-18n-103w, in the Middle Baxter Basin field, which found a gas flow gauged at 3,000,000 cubic feet a week ago in the Frontier formation at 1600 feet. Operators are setting pipe at 1800 feet, total depth, and will continue. If the well does not produce commercially from a lower sand it will be completed for a gasser through perforations. Betty Hoyt 1 and Agnes Fay 1, both drilling in the Middle Baxter field, are feeling ahead for the Dakota sand, gas producing objective of the wells.

A 2,500,000 cubic foot flow of gas was found this week in the Rocky Mountain Drilling Company's Osborne 1, SE SE SE 12-18n-104w, Middle Baxter, at 2480 feet. It is drilling ahead at 2493 feet to test further into the sand.

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ARKANSAS FIELDS

Second test starts in new Permian area at Buckner

El Dorado, Ark.—Two additional wells, bringing the total in that horizon to 11, were completed last week in the lower Marine (Jones) sand in Schuler, Union County.

Lion Oil Refining Company and others' D. S. and J. C. Morgan C-1, NEc SE SE 18-18-17, which with elevation of 213 feet logged Jones sand from 7513 to 7573 feet, was completed flowing 850 barrels in 24 hours through 28/64-inch tubing choke. Phillips Petroleum Company's Jennings 1, NWc SW NE 18-18-17, was completed flowing 48 barrels per hour through 40/64-inch tubing choke with tubing pressure 725 pounds and casing pressure, 450 pounds. Total depth is 7733 feet, but the Jones sand was logged from 7553 to 7626 feet; elevation is 265 feet.

Phillips Petroleum Company's Justiss 2, SEc Lot 6, NW 18-18-17, was preparing to core for Jones sand at 7477 feet and Marks 2, NEc Lot 2, SW 18-18-17, was drilling at 7438 feet. Lion Oil Refining Company's Edna Morgan B-4, NW SW SE 18-18-17, was drilling at 7302 feet and Alice Sidney Oil Company's D. S. & J. C. Morgan, NW NE SE 18-18-17, was arranging to core at 7484 feet. Four other tests were drilling, 3 rigging and 5 were active locations.

Reports that Lion Oil Refining Company's Edna Morgan A-1, Section 18-18-17, the Permian lime gas-distillate well at Schuler, was making 1 percent salt water have been misleading. The water is due to salt crystals in the reservoir becoming soluble at atmospheric pressure.

The second test for the new Buckner Permian lime oil field, Columbia County, was spudded last week by Lyons & Neely at Lillian Taubel 1 (Tatum fee), C SE NW 18-16-22, LaFayette County.

Kerrlyn Oil Company's Barnett 1, SE SW NE 14-17-20, which is being deepened from 6314 feet, will be taken to 7600 feet or 100 feet below top of the Permian lime, now commonly called the Reynolds lime from the name of the lease on which it was first found productive at Snow Hill, Ouachita County.

Columbia County continues to be active in exploration and lease trading. Mid-Continent Petroleum Corporation is acquiring leases in Township 17, Range 20; in Township 18, Range 19; and in Township 19, Range 23.

ARKANSAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
DALLAS COUNTY—		
L. S. Gist, Goodgame 1, 26-10-16	*	2097
MILLER COUNTY (Rodessa)—		
Guaranty Oil Corp. & Am. Liberty Oil Co., Treadway 1, 10-20-28	480	6151
Lacey & Riley, Grogan 2, 15-20-28	120	6042
UNION COUNTY (Shuler)—		
Lion et al, D. S. & J. C. Morgan C-1, 18-18-17	850	7604
Phillips, Jennings 1, 18-18-17	1152	7733

*Failures; †Junked; ¶Million cu. ft. gas.

Atlantic Refining Company has a seismograph unit working in Township 17, Range 19, and Tidewater Associated Oil Company has a shooting unit working in Township 17, Range 20. Magnolia Petroleum Company has a similar unit working in Township 14, Range 24, Hempstead County.

Six Permits Issued

Six drilling permits were authorized last week by the Arkansas Board of Conservation, of which 4 were for the deep Schuler field, Union County. A list of the permits follows: La Fayette County—Lillian Taubel, H. L. Tatum 1, 520 feet west and 500 feet south NEc SE NW 18-16-22; Miller County—Freda Lasse Layton, Hugh McCellar Estate 1, 330 feet north and west SEc frac. W½ frac. Section 15-20-28; Union County—Phillips Petroleum Company, Louis Rosen 1, (to Jones sand) 330 feet from S & E lines SW NE 18-18-17; Lion Oil Refining Company, Edna Morgan A-4 (to 7600-foot sand), 430 feet east of west line and 330 feet south of north line Lot 1, SW 18-18-17; Marine Oil Company, Marine Oil Company 4, 330 feet east and 480 feet south NWc SW SW 17-18-17; and Lion Oil Refining Company, Frances Miller 1 (to 7600-foot sand) 330 feet north and east SWc NW NE 18-18-17.

SOUTHEASTERN STATES

Hinds County salt dome area gets another test

Jackson, Miss.—Tentative location was made last week for a second test on the recently-discovered salt dome in Hinds County near Edwards. The location is Cleve Love and associates' Montgomery 1, SW SE SE 28-6n-4w. This location is 2 miles west and slightly north of Southern Natural Gas Company's Angelo Williams 1, NE NW 35-6n-4w, which drilled to white crystalline salt and abandoned at 4346 feet.

Southern Natural Gas Company is reported to have offered Love and his associates financial assistance in drilling this test.

Following are the contract points filed with the Mississippi State Oil and Gas Board on Angelo Williams 1 whose elevation was 182.7 feet: top of Vicksburg, 170 feet; top of Jackson, 770 feet; top of the Yegua, 1275 feet; top of the Minden, 1445 feet; top of the Sparta, 2050 feet; top of the Cane River, 2631 feet; top of the Wilcox, 2770 feet; top of Midway, 2787 feet; top of calcite veined lime (chalk equivalent) 2794 feet; top hard white calcite crystalline, 2814 feet; granulated porous cap rock, 2973 feet; white chalk soft anhydrite (33 percent), 3026 feet; white crystalline salt, 4346 feet.

Leasing Activity Continues

Leasing activity has gotten off to a good start in Mississippi for 1938.

Andrew T. Greeley of Chicago and associates have contracted with James T. Watts and S. T. Whisby for a detailed geological report to be completed by June 1 on several blocks in west central Mississippi on which renewals were recently paid. A deep test is to be started upon completion of the geological work, with three shallow tests to be drilled to test structures. A 20,000-acre block belonging to this group with the village of El Dorado, Warren County, as its west edge, calls for a test by July 1, the time having been extended from April 1. This group owns approximately 200,000 acres in Warren, Sharkey, Issaquena and Yazoo counties, all in the Mississippi delta.

M. Larew of Houston, Texas, has secured a 12,000-acre lease from Dr. Sid Johnson in northern Warren County, west of the village of Redwood, which calls for starting a test by March 1. The leases are for five years.

Humble Oil & Refining Company has taken 10,120 acres in checkerboarded leases in Simpson County, south Mississippi, from Magee Stokes. Southern Carbon Company of Monroe, Louisiana, has leased from Southern Mineral Development Corporation, owners of the reserved mineral rights of the Finkbine Lumber Company, a total of 6,250 acres in townships 12 and 2 north, range 2 east, for 10 years.

Following in the wake of gravimeter work, Gulf Oil Corporation continues to lease in Claiborne County, in township 10 north, ranges 4 and 5 east.

Florida State lands in Everglades leased

Tallahassee, Fla.—The Trustees of the Florida Internal Improvement Board, the state's land department, has granted to William G. Blanchard of Coral Gables, and to A. C. Preston of Miami, exploration and preferential leasing rights on all of the state's unleased state-owned land in lower Florida, mostly in the Everglades in Monroe, Dade and Collier counties, and totaling approximately 1,500,000 acres. Geophysical exploration is expected to be started soon.

Clem S. Clarke of Shreveport several months ago assigned geophysical exploration rights on over 1,000,000 acres in Collier and adjoining counties in the Everglades to Gulf Oil Corporation which is now making a geophysical survey of the acreage, which Clarke leased from Barron G. Collier.

Tulsa Exposition Reports More Exhibit Space Sold

A total of 476 exhibitors have already reserved 60 percent more space for the International Petroleum Exposition, May 14 to 21 at Tulsa, than was sold to the 397 exhibitors of the 1936 oil show.

To take care of the need for more space the Exposition has added five acres to its grounds and three new buildings. Eight companies will soon begin construction of their permanent exhibit buildings at the exposition.

General Manager Wm. B. Way has announced that regardless of how much space has been sold those firms who make application for space will be taken care of.

NEW MEXICO

Vacuum completion reveals thicker pay formation.

* * *

New work in Lea County falls off since new year.

Hobbs.—Completion of another natural producer in the south portion of the Vacuum field, Lea County, reveals that a greater thickness of saturated lime is present than heretofore taken into consideration. Thicker pay section was established by The Texas Company's State 1-M, C SE NW 1-18s-34e, which flowed an average of 44 barrels per hour for 4 hours through ¾-inch choke, with gas volume rated at 6,240,000 feet daily, when tested at 4500 feet. Deeper drilling uncovered soft pay at 4522-36 feet and 4540-50 feet. The well flowed 27.8 barrels average per hour for 11 hours through choke at the latter depth. First free oil was logged at 4270 feet, with an elevation of 4003 feet, and main pay near the 4350-foot level. The company's east offset was completed last November with an initial gauge of 820 barrels of 35 gravity oil from lime at 4297-4497 feet, with an elevation of 3998 feet.

Magnolia Petroleum Company's State-Bridges 3, located between the older section of the Vacuum field and the south extension, has cemented 7-inch pipe at 4275 feet. Phillips Petroleum Company's Hale 1, also an intermediate test, was drilling at 3600 feet. Magnolia Petroleum Company has erected derricks for State 1-H and 1-I.

The Texas Company's Corbin 1, western Lea County wildcat and 8½

NEW MEXICO Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
LEA COUNTY (Wildcat)—		
Eastland Oil Co.-Michaels & McCune, Waldrop-Shell 1, c se se 1-20s-38e.	*	4755
LEA COUNTY (Cooper)—		
Repollo, C. W. Whitten 2-B, ne ne ne 4-24s-36e	1224	3640
LEA COUNTY (Eunice)—		
Gulf, L. W. White 1-B, c se se 35-20s-36e	24	3860
LEA COUNTY (Hardy)—		
Southern Pet. Explor., Downes 1, c se sw 32-21s-37e	600	3784
Stanolind, L. A. Thompson 1, lot 1, 6-21s-37e	127	3770
LEA COUNTY (Langlie)—		
Gulf, J. A. Stuart 3, c se ne 10-25s-37e	65	3422
Leonard et al, Lanehart 4, sw nw ne 21-25s-37e	65	3035
LEA COUNTY (Mattix)—		
Repollo, Mosley 3, ne sw sw 34-24s-37e	600	3493
LEA COUNTY (Monument)—		
Gulf, Kyte 2, c sw se 7-19s-37e	200	4033
LEA COUNTY (Penrose)—		
Gulf, Stebbins 2-B, c nw ne 5-22s-37e	124	3759
LEA COUNTY (Vacuum)—		
Skelly, State 1-J, c ne nw 31-17s-35e.	254	4545

*Failures; †Junked; ¶Million cu. ft. gas.

miles west by south of Vacuum area, logged top of anhydrite at 1550 feet, with an elevation of 3984 feet, and was drilling at 1618 feet.

Half-a-mile-west extension for the north portion of the Cooper field was recorded by Barnsdall Oil Company's H. Whitten 1, NE NE NW 4-24s-36e, although it occupies a low structural position. The well flowed 220 barrels of oil in 12 hours after 65-quart nitro shot in lime at 3645-69 feet. Formation tester used previously revealed only a small show of oil and gas. Top of lime was logged at 3400 feet, or 30 feet above seat level. This completion will require 3 offsets.

The Texas Company et al's Cagle 2, C SW SW 15-26s-37e, offsetting production in the Rhodes pool, tested gas after 340-quart nitro shot at 3056-3195 feet, with the hole bottomed at 3216 feet, or 217 feet sub-sea. It will be deepened. Three previous completions were originally gassers, but later converted into high-gravity oil wells.

New locations for Lea County have been scarce since the turn of the year. Only 3 new projects were launched last week. Texas Pacific Coal & Oil Company started work on State 8-A, C SE SE 7-22s-36e, offsetting a recent southwest extension for the Eunice lime area. Continental Oil Company et al made location for Jack 1-A-20, C NW SE 20-24s-37e, Mattix field, while Southern Petroleum Exploration, Inc., Downes 2, C SW SW 32-21s-37e, is at the border line of the ePnrose and Hardy areas.

Los Angeles. — Total tanker shipments of crude oil and petroleum products during November from California was 6,588,434 barrels, not including package goods. Of this total, 4,670,062 barrels went to Pacific foreign, most of which went to Japan. The Pacific foreign movement consisted of 300,565 barrels of crude oil, 939,466 barrels of fuel oil, 488,848 barrels of gas and Diesel oil, 483,766 barrels of gasoline, and smaller amounts of other products.

CALIFORNIA FIELDS

Much of this year's drilling projected below 10,000 feet.

* * *

Fault makes new Wilmington town area doubtful project.

Los Angeles.—That major and more important independent companies of California during 1938 will seek new oil sands below 10,000 feet is indicated by the fact that 10 wells are either drilling below 10,000 feet, or are inactive at a depth greater than 10,000 feet. Several wells drilling in the state are fast approaching extreme depths. Four holes are below 11,000 feet.

The deepest active hole in California is Continental Oil Company's K.C.L. A-2, Section 8-27-24, in the Wasco area of Kern County, which has reached 12,320 feet, and picked up a 2-foot core of gray siltstone, which is considered an important marker. The hole had been coring gray sand and it is expected that a shale body will soon be picked up. Last casing in this well was 7-inch cemented at 11,570 feet.

Continental Oil Company's K.C.L. B-1, Section 12-29-26, in the Rosedale area of Kern County, has a depth of 10,205 feet, but is redrilling at 9425 feet in brown shale. Nearby, in Section 10-30-26, the company's K.C.L. D-1 is a rig, indicating that it thinks very well of this wildcat area.

Kettleman North Dome Association, after sticking drill pipe in No. 4-18J, edge test for the North Dome and which was bottomed at 11,746 feet, Section 18-21-17, has decided to make no further effort to make more hole and has plugged back to 10,810 feet and 4¾-inch liner was landed on plug. It included 40 feet of perforated, preparatory to a production test. It will be remembered that last July, with bottom at 10,753 feet, this well showed good for 1200 barrels of 46.7 gravity clean oil in what is known as the Eocene-Avenal-Sandstone formation. During the drilling of this hole from 10,746 to new bottom, it is to be noted no productive measures were encountered below 10,861 feet.

The showing made by No. 4-18J caused Superior Oil Company to decide to drill deeper its old producer, Huffman 5, in the proven area, Section 29-21-17, and hole was made to 10,400 feet when drill pipe stuck. Pipe was recovered to 10,275 feet, and fish has been cemented in place, it will be side tracked, and more hole made. This well has not yet picked up the Eocene, and other operators in the proven area are waiting to see what Huffman 5 will pick up. Seven other holes in the North Dome are below 8000 feet, and one is drilling at slightly better than 9400 feet.

In Tulare County, in the Trico area, Standard Oil Company's Morris 1, Section 36-24-23, stuck drill pipe at 11,446 feet. The pipe was recovered to 10,000 feet, and will be side tracked. Another interesting deep test, in Fresno County, is Pure Oil Company's S.P. 1, Section 31-18-17, which is drilling at 10,160 feet in shale, having passed 10,000 feet January 8. Last casing cemented was 13⅜-inch, at 1705 feet.

Three Below 10,000 Feet

Union Oil Company is drilling or testing three holes below 10,000 feet. Bell 100 at Santa Fe Springs has bottom at 11,314 feet. Last casing cemented was 3½-inch at 11,215 feet. Hole is being bailed and several small flows have been reported, but lower portion of well has not yet been cleared of drilling mud. It may be a well, but further bailing is necessary before the truth can be known.

In the old proven area of the Richfield field, Union Oil Company's Chapman 29 is drilling in gray sand at 10,115 feet, with last casing cemented being 8⅝-inch at 7614 feet. The company is determined to find out if much deeper and unknown oil sands can be found in this old field.

In the old Rosecrans field in Los

(see opposite page)
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Angeles County, Union Oil Company is also seeking a new deep zone below 10,000 feet with Howard Park 35, which is drilling below 10,035 feet in gray sand and shale. Last casing cemented was 13⅜-inch at 1195 feet. Fair production has previously been found between 8000 and 9000 feet in this area, but production did not hold up. If Union Oil Company uncovers a sand below 10,000 feet, considerable new activity can be expected in this old field.

In the Wasco area of Kern County, Seaboard Oil Corporation - Tide Water Associated Oil Company's Continental-K. C. L. C-1, Section 26-27-24, was drilled to 10,213 feet and shut down to await results to be obtained by other deep tests being drilled in this area.

Montebello Well Clears

The development of production from Miocene formation on the west side of the old Montebello field in Los Angeles County by St. Helens Petroleum Company's Monterey 20, total depth 6353 feet, apparently is the outstanding development in Los Angeles Basin in January. This well was completed January 2 for 2000 barrels, cutting 60 percent water, but within 3 days had cleared up until the cut was less than 1 percent. January 10, this well made 809 barrels of 40.3 gravity clean oil.

The east and west sides of the Montebello field are apparently separated by a cross fault, which makes conditions vary in the two areas. The new completion is the first test of the Miocene in the western part of the field and the new formation is equivalent to the prolific Clark zone at Santa Fe Springs. The new well was completed in the very top of the Miocene and thickness is not known. Thos. W. Simmons, who holds an offsetting 125-acre lease, will start the first offset.

The east side of the fault at Montebello is to be tested by a new well soon to start. Heretofore, production has come from the west side of the fault, and progress of the new well will be watched with interest. A. S. Johnston Drilling Corporation and Universal Consolidated Oil Company will drill a joint test on the Pico-County Water Division property in Section 5-2-11, the location falling 520 feet east and 150 feet south at right angles to the northwest corner of the property.

A new tide land well has been completed at Huntington Beach, which may bring about some additional activity in the old field. Lido Petroleum Company's Severns 2 (formerly Southern California Drilling Company, an old producer) was redrilled from 825 feet to 5024 feet, being slanted to bottom under the ocean tide lands. Initial production was 500 barrels, settling down to 550 barrels of 26.9 gravity clean oil. The flow is through 701 feet of 5-9/16-inch perforated landed on bottom.

Barnsdall Oil Company's Rancho San Francisco 2, second test for Newhall, with bottom at 6374 feet, tested 3½ stands of gas-cut mud, and was disappointing to those who had expected much from the new field. This company's first test proved a field of some kind, but it may be necessary to drill more than one other well to prove its value.

Much had been expected of wells drilling in the new Harbor area of the Wilmington field, but there have been no developments to prove that anyone is right. One disappointment is the failure of Allied Petroleum Company's No. 23 to develop production in the Terminal zone, with bottom at 3229 feet, formation being gray sand and barren. It is being plugged back to 2990 feet for a test of the Ranger zone. According to the opinion of one authority, it is thought two-thirds of the water front area is cut off by faulted conditions. As the situation now appears, it is possible that 90 percent of the town-lot area is barren.

CALIFORNIA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
EL SEGUNDO—		
Government R & G Corp. Grauman 1	685	7195
LONG BEACH—		
Rico Pet. Co., No. 1	125	4165
MONTEBELLO—		
St. Helens Pet. Co., Monterey 20	1400	6353
WILMINGTON—		
Colter-McAdoo, Wilmington 5	300	3640
Nielson-Dinwoody, Buckley 2	125	3678
Wilmington Oil & Dev. Co., No. 2.	165	5703
FRUITVALE—		
Western Gulf, K.C.L. B-30	260	3070
ROUND MOUNTAIN—		
H. A. McDonald, Larkin 2	450	1990
Shell, Caldwell 19	190	1835
D. G. Vedder, Bell 3	400	1953
VENTURA AVENUE—		
Shell, Taylor 92	3840	8484
Tide Water Associated, V.L.W. 32	1325	7430
KERN COUNTY—		
North American Oil Cons. No. 1	*	3220

*Failures; †Junked; ¶Million cu. ft. gas.

AFTER 34,645 HOURS OF SERVICE

HERE ARE THE FACTS

...ABOUT WAUKESHA OIL WELL PUMPING ENGINE PERFORMANCE

On October 28, 1932, this VFU Waukesha Oil Well Pumping Engine went into service on the Union Oil Company's Farwell No. 11 Well, Santa Fe Springs, Calif. After 34,645 hours (1443½ 24-hr. days), here are the facts—

Lubricating Oil Consumption—Total, 1812 qts., including changes. Average, per 24-hr.—(last 539 hrs.) .84 qts. No. 40 S.A.E. Motor Oil; (first 703 hrs.) .89 qts. No. 20 S.A.E. Turbine Oil.

Replacement Parts During Entire Service—one fan belt.

Extent of Wear and Maintenance required after 34,645 hrs.—Cylinder wear, .0035—.004 in.; Valve guide wear, .002 in. (not replaced); Piston wear negligible (not replaced); Valves and seats, good condition; 2 exhausts, slight leak (ground); Timing gears, OK; Main bearings, slight wear (not replaced); Rod bearings, slight wear (thin shim removed); Oil pump, no wear; Piston rings, slight wear (replaced); Oil pump screen, two-thirds closed with carbon sludge; Carbon sludge in oil pan, one pint.

Write for Bulletin 970.

WAUKESHA MOTOR COMPANY, WAUKESHA, WIS.
NEW YORK TULSA LOS ANGELES

ENGINE...Model VFU, Ricardo Head, 4 cyl., 4x5 in., 35 hp; mounted on National torque arm pumper; 1000 rpm on lifting rods; 1050 rpm on lifting counter weights; thermo-syphon cooling; natural gas fuel; micro top cylinder ring; one standard compression ring; one oil ring.

WELL...5518 pumping level; 2½ upset tubing; 1⅜ x 54 in. pump; ¾ sucker rod; 20 strokes per minute.

WAUKESHA ENGINES

IMPORTANT WILDCAT TESTS

ALABAMA

GREENE COUNTY—Greene County Dev. Co.'s R. C. Lett 2, se nw 5-21n-2e, sd 115 ft.

HOUSTON COUNTY — Rice O&G Co.'s Oakley Est. 2, se nw sw 9-3n-29e, sd 4975 ft.

MOBILE COUNTY — Grand Bayou O&G Co.'s J. A. Stafford 1, sw sw 24-7s-3w, lcn. J. C. Prine's King 2, ne ne 4-1n-4w, elev 135 ft, 10-in csg 300 ft, arr set 8-in csg, td 1100 ft (1100 ft s of No. 1).

ARKANSAS

CLAY COUNTY—Canadian American Oil Co.'s Smith 1, c ne nw 9-20-8, spd top Nacatosh, 800 ft, dr 1005 ft.

CRITTENDEN COUNTY—Manning & Martin, Inc.'s Cartwright 1, se nw sw 16-7n-8e, sd 3500 ft.

COLUMBIA COUNTY—Kerrlynn Oil Co.'s Barnett 1, se sw ne 14-17-20, elev 321 ft, dr 6448 ft. Standard's D. E. Thomas 1, nw se 8-16-22, mim; Bodcaw 1, c se ne 18-16-22, mim.

DALLAS COUNTY—L. S. Gist's J. H. Goodgame 1, 36-10-16, abn 2097 ft.

DREW COUNTY—Sloan, Wells et al's Hardy 1, sec nw 3-14-7, ru and sd.

HEMPSTEAD COUNTY—Easton, May & Murdock's R. M. LaGrone 1, ne ne 5-12-26, sdtr 2944 ft.

LE FAYETTE COUNTY—Lyons & Neely's Lillian Taubel 1 (Tatum Fee), c se nw 18-16-22, spd.

MILLER COUNTY—F. F. Earles' General American 1, sec sw 20-14-26, rur. Hearell & Burnett's Willie Wallace 1, se nw se 7-20-27, lcn.

OUACHITA COUNTY—A. H. Tarver et al's Dean 1, c nw sw se 16-14-19, elev 246 ft, Nacatosh 1304-21 ft, top Meekin sand 1827 ft, pb to Nacatosh to test so, old td 2225 ft, Tokio. O. F. Whittaker's C. C. Guttry 2, sw se nw 21-15-19, cored broken sand 2146-2208 ft, 300 ft oih, wosr, td 2208 ft.

CALIFORNIA

FRESNO COUNTY

CLOVIS—Central Valley Oil Co.'s No. 1, 1-12-20, sd 215 ft.

JACALITOS CREEK—Dauphin Dev. Co.'s Boone 1, 20-21-14, dr shale 3751 ft.

COALINGA—F. C. Grimes' No. 1, 12-20-15, lcn.

JACALITOS HILLS—Jacalitos Pet. Co.'s Associated 1, 14-21-15, dr shale 5750 ft.

GUIJARRAL HILLS—Petroleum Sec. Co.'s Gatchell 2, 18-20-16, dr shale 2028 ft.

HURON—Pure's S. P. 1, 31-18-17, dr 10,058 ft.

CIERVO—Superior's No. 1, 20-16-13, dr 2076 ft.

TRANQUILITY—Union's Nicholson 1, 17-15-15, dr shale 5781 ft.

CANTUA CREEK—Western Gulf's S.P.L. 4, 3-17-15, dr 4371 ft.

COALINGA—J. F. Wilcox's No. 6, 11-20-14, dr.

KERN COUNTY

MIDWAY-SUNSET—American Empire Oil Co.'s No. 1, 20-31-24, rig.

DEVIL'S DEN—Amerada's Beer 5, 22-26-19, dr 5933 ft.

FRUITVALE—Calif. Western Oil Co.'s K.C.L. 1, 14-29-27, dr 2920 ft. Pacific O&G Dev. Co.'s Fannuchi 1, 14-29-27, td 3017 ft. in oil sand, wocs 8⅝-in 2982 ft. Western Gulf's K.C.L. B-31, 14-29-27, lcn.

WASCO—Continental's K.C.L. A-2, 8-27-24, dr 12,108 ft.

ROSEDALE—Continental's K.C.L. B-1, 12-29-26, td 10,205 ft, redr 9420 ft; K.C.L. D-1, 10-30-26, rig.

KERN FRONT—Deep Zone Oil Co.'s No. 2, 20-28-27, rur. Vernon & Wheeden's Robinson 1, 28-28-27, sd 2540 ft.

ARVIN—Union's Berry 1, 16-31-29, foundation.

BELRIDGE—General's St. Helens 1, 12-28-20, dr shale 6005 ft. Ohio's Ford 1, 6-29-22, sd 2027 ft.

McVAN—Golden Bear Oil Co.'s No. 1, 10-27-27, lcn. North American Oil Cons. Co.'s No. 1, 26-27-27, abd 3220 ft, top Vedder 3209 ft.

GRAPEVINE—Honolulu Oil Corp.'s Honolulu-Associated S.P. 33-1, 33-12-19, td 6150 ft in shale (chenac) recovered lost dr pipe, to core ahead. Petrol Corp.'s No. 1, 32-11-19, dr 1020 ft in shale. Universal Cons. Oil Co.'s Tejon 1, 33-11-19, td 4450 ft flowing 40 bbls 23 gravity oil and 300,000 cu ft gas. Ohio's T.R.C. D-2, 23-11-12 dr shale 5585 ft.

ROUND MOUNTAIN—Harry Long's No. 1, 2-28-28, dr. Petroleum Securities Co.'s Coffee 6, 1-28-28, rur. Richfield's Olcese 1, 17-28-29, dr. Shell's Olcese L-2, 21-28-29, dr 1811 ft.

McKITTRICK—Par-Mer Oil Co.'s Par-Mer 1, 6-31-22, sd 2150 ft. Rocima Oil Co.'s No. 1, 20-30-22, dr brown shale 2380 ft.

McFARLAND—Shell's Keystone 1, 4-26-27, dr 2390 ft.

STRAND—Shell's K.C.L. A-72, 14-30-25, dr 8020 ft.

SAN EMIDIO—Shell's No. 4-26, 26-11-22, dr shale 5360 ft, dips 41 degrees.

TEN SECTION AREA—Standard's K.C.L. 15-1, 27-30-26, td 8070 ft, wocs 7 in 6313 ft.

SEMITROPIC—Standard's Randolph Com. 2, 14-27-23, dr shale 8500 ft.

GREELEY—Superior Oil Co.'s K.C.L. 9, 3-30-26, sd 7870 ft.

SOUTH MARICOPA—Texas Co.'s Pioneer 1, 33-11-23, dr 6260 ft.

MISCELLANEOUS

GLENN COUNTY—Ohio's Willard 1, 18-20-2, dr 4480 ft.

KINGS COUNTY—Pyramid Prod. Co.'s Retherford 1, 27-24-18, td 1540 ft, r to straighten hole.

SUTTER COUNTY—Buttes Oilfields' No. 3, 2-15-1 (Marysville Buttes), td 6940 ft, ran formation tester, plugging to test upper showings.

TULARE COUNTY—Crusaders Oil Co.'s No. 1, 1-24-27, lcn. Standard's Morris 1, 36-24-23, dr shale 11,442 ft.

MONTEREY COUNTY—Amil A. Anderson's Hillman 1, 15-24-14, dr shale 3300 ft. Elva Oil Co.'s Elba 1, 6-12-1, sd 4021 ft; Elba 2, rig.

MERCED COUNTY—Amerada's Carano 1, 19-10-11, testing 7710 ft.

SAN JOAQUIN COUNTY—Standard's Weil-Zuckerman 2, 25-2-4, dr 7476 ft.

SAN MATEO COUNTY—Bergman Oil Co.'s No. 1 (Half Moon Bay), 10-6-5, lcn. Wilshire Oil Co.'s Cowell 1, 20-6-5 (Half Moon Bay), dr shale 6290 ft.

SOLANO COUNTY—Amerada's Deterding 1, 36-4-2, td 4457 ft, tested wet at 4300 ft. Tracey Dr. Co.'s Hanson 2, 36-4-2, td 4380 ft, gas from upper zone started to escape through formation around derrick foundation, pumping in cement to cement 8⅝-in to surface, 8⅝-in had been landed at 3945 ft.

SAN LUIS OBISPO COUNTY—Ajaz Pet. Co.'s No. 1, 27-26-13, rig.

SANTA BARBARA COUNTY—E. C. Arnold's Arnold-Apache 2, 8-8-33, co 6370 ft. Carpenteria Oil Co.'s No. 1, 34-4-2, rig. O. C. Field's Santa Rita 1, 11-7-33, td 3358 ft, co. Pima Oil Co.'s Margarita 1, 13-9-35, dr 1410 ft. Standard's Los Flores Land 1, 27-9-33, dr shale 3764 ft. A. E. Tweedy's No. 1, 34-5-31, dr shale 1163 ft. United Western Oil Co.'s No. 1, 16-7-30, sd 1032 ft. Wilshire Oil Co.'s Hollister 1, 5-5-33, dr.

VENTURA COUNTY—Oxnard Co.'s Vanoni 1, 10-1-22, td 6302 ft, ran blank liner to 6200 ft, to recement. Vaca Oil Explor. Co.'s Lennox 1, 6-1-21, td 2885 ft, producing 290 bbls, 11 gravity oil, cut 1 percent. General et al's No. 1, 15-1-22, dr 2320 ft. Texas Co.'s Rancho Santa Clara 1, 13-3-21, dr shale 5770 ft.

SOUTHERN CALIFORNIA

PALMDALE—Antelope Valley Pet. Co.'s No. 1, 17-6-12, rur.

NEWHALL—Barnsdall's Rancho San Francisco, 26-4-17, td 6374 ft, test showed 3½ stands gas cut mud, may drill deeper. Towsley Canyon Oil Co.'s Hammond 1, 8-3-16, dr 4220 ft.

MONTEREY PARK—W. E. Ramsey's Bass-Goodnight-Garvey 1, 27-1-12, dr shale slight gas shows 2990 ft.

PALOS VERDES HILLS—Rolling Hills Pet. Co.'s P. V. 1, 27-4-14, dr shale 2656 ft.

CASTAIC—Royal Lands Corp.'s Romona 1, 8-4-17, co 330 ft.

GARDENA—Texas Co.'s Gardena Com. 5-1, 30-3-13, dr 5953 ft.

SAN BERNARDINO COUNTY—Selegna Dr. & Prod. Co.'s Abacherli 3, dr sandy shale 1870 ft.

FLORIDA

LAKE COUNTY—Oil Dev. Co. of Fla.'s Gulf Expl. Co. 2, se se 17-24s-25e, elev 120 ft, arr re-test 2600 ft, old td 6126 ft.

LEVY COUNTY—Fla. Oil Discovery Co.'s Sholts 2, sw sw ne 9-15s-13e, sd repair drawworks 2275 ft lime.

NASSAU COUNTY—St. Mary's River Oil Corp.'s Hilliard Turpentine Co. 1, nw ne se 19-4n-24e, elev 110 ft, dr 3930 ft, hd shale and streaks blue lime.

SUWANEE COUNTY—Wm. G. Blanchard's Lucy Cotton 1, se ne 35-3s-11e, elev 70 ft, 16-in csg 190 ft, sd for heavier rig, td 200 ft.

ILLINOIS

BOND COUNTY—Universal Wells Serv. Co. et al's Molder 1, nw nw nw 24-6n-4w, sd 2045 ft. A. T. Whitehead et al's Pollan 1, nw se sw 26-6n-2w, sd 2633 ft. W. C. McBride's Butler 1, nw sw se 30-4n-2w, mim.

CLAY COUNTY—Shelby O&G Co.'s Knodacker 1, nw se sw 23-3n-7e, sd 2933 ft. J. E. Milburn's Striegle 1, se nw ne 19-3n-8e, dk. Bonnie Oil Co.'s Schnautz 1, se sw ne 31-4n-8e, cor 3036 ft. Vermillion Oil Co.'s Duff 1, c s½ ne se ne 19-3n-8e, td 3046 ft, P. 138 bbls oil, 24 hrs, comp. Wiser Oil Co. et al's Irwin Est. 1, c n½ se nw 12-2n-7e, dr plugs. J. V. Wicklund's McCauley 1-A, ne sw nw 7-2n-9e, dk. Campbell et al's Walter Henderson 1, c n½ ne ne 7-4n-7e, c & p. Carter's Cox 1, c e½ se sw 14-4n-5e, dk. Bonnie Oil Co.'s Walker 1, se se nw 21-4n-8e, mi rot.

CLINTON COUNTY—R. E. Dalton's Clifton 1, ne sw sw 15-1n-4w, dr 485 ft. Ellzy et al's Williams 1, sw nw sw 1-3n-1w, dk. Schlosberg & Siegel's Monken 1, ne sw sw 4-2n-1w, fsg 1350 ft. Watkins & Wright's William Wise 1, nw nw se 24-1n-3w, mim. Phelps et al's Gubser 1, c w½ w½ nw 4-3n-2w, spd. Holley & Willis' Hughes 1, c n½ ne nw 18-3n-2w, lcn.

COLES COUNTY—W. J. Miller et al's Tomberlin 1, se se se 21-11n-10e, sd. Hughes' Swango 1, c sw ne 27-13n-9e, sd 450 ft.

CUMBERLAND COUNTY—Jolly-Hill-Stipes et al's Jenkins 1, se ne ne 30-10n-9e, co 2030 ft. Chas. Kapschuell's Oakley 1, sw ne sw 34-10n-8e, mi rot tools.

EDWARDS COUNTY—Cotton & Laller's Hays 1, ne ne ne 4-1s-10e, lcn.

EFFINGHAM COUNTY—Kingwood & Carter Oil Co.'s Bartel 1, c e½ ne nw 26-6n-5e, testing 4102 ft. Samuel Hollis et al's Harrman 1, nw se sw 32-8n-6e, cor 2461 ft. Kingwood et al's McWhorter 1, c e½ se nw 15-6n-6e, dk.

FAYETTE COUNTY — Carter Oil Co.'s

ABBREVIATIONS

The following abbreviations, signs, etc., are used in completions and wildcat reports in THE OIL WEEKLY.

*—*dry hole abandoned well.*
‡—*salt water (completions).*
†—*junked and abandoned.*
¶—*million feet of gas.*
abd—*abandoned.*
bbls—*barrels.*
br—*building rig.*
b.s.—*basic sediment.*
csg—*casing.*
co—*cleaning out.*
dd—*drilling deeper.*
dk—*derrick.*
dr—*drilling.*
fsg—*fishing.*
ft—*feet.*
hfw—*hole full of water.*
in—*inches.*
lcn—*location.*
m—*milling.*
mim—*moving in materials.*
mit—*moving in tools.*
mot—*milling on tools.*
n, s, e, w—*north, south, east, west.*
oih—*oil in hole.*
owdd—*old well drilling deeper.*
owpb—*old well plugging back.*
pb—*plugged back or plugging back.*
r—*reaming.*
rog—*rig on the ground.*
rur—*rigging up rotary tools.*
rust—*rigging up standard tools.*
sd—*shut down.*
sdtr—*sidetracking.*
sg—*show gas.*
si—*shut in.*
so—*show oil.*
so&g—*show oil and gas.*
spd—*spudding.*
sr—*straight reaming.*
sw—*salt water.*
td—*total depth.*
ur—*underreaming.*
wih—*water in the hole.*
wo—*workover.*
wocs—*waiting on cement to set.*
wosr—*waiting on standard rig.*

Miller 1, c w½ nw nw 12-8n-3e, td 3170 ft, to pb. John Farrely's Lilly 1, se sw se 16-8n-3e, sd 1275 ft. Carter's Clow 1, c e½ sw ne 15-8n-3e, td 1508 ft, testing. Wilson & Stokes' Fee 1, nw sw ne 14-8n-3e, mach. W. B. Greer's Metzger 1, c n½ ne nw 19-5n-2e, spd & sd. Ryan & Redgraves' Jones 1, c s½ ne 24-9n-1e, sd 193 ft.

FRANKLIN COUNTY—Robert Markham's Whittington 1, c e½ sw se 18-5s-3e, dr 2515 ft. Washburn Pet. Corp.'s Neil 1, c e½ se se 6-5s-4e, dr 1670 ft.

GREENE COUNTY—M. V. Yeager's Robinson 1, se sw nw 17-10n-11w, dr 1666 ft.

HAMILTON COUNTY—Carpenter et al's Clark 1-A, nw nw sw 32-3s-5e, sd 1000 ft.

JACKSON COUNTY—Stanolind's Leiner 1, se se nw 20-7s-4w, br.

JASPER COUNTY—C. R. Obermeyer's Atkins 1, nw nw ne 3-6n-9e, sd for fuel oil. Denver P&R Co.'s Ochs 1, nw nw ne 33-6n-14w, td 2018 ft, D & A. Hoffman et al's King 1, sw nw nw 20-8n-10e, sd 3050 ft, may dd.

JEFFERSON COUNTY—Siegel & Schlosberg's Schneider 1, ne ne se 15-1s-1e, abn 1957 ft. Carter's Tate 1, c w½ nw ne 10-1s-2e, pb, td 1990 ft, p. 48 bbls oil & 22 bbls wtr, 24 hrs, comp. Sturbois & Tomberlin's Osborne 1, c nw se 8-2s-2e, dk. Nollem & Benoist's Kelley 1, ne nw ne 25-4s-2e, dr 2100 ft. Chas. Kapschuell's Hamilton 1, ne sw nw 20-4s-3e, td 2911 ft, may skid rig. Sturbois & Tomberlin's J. B. Morris 1, nw nw sw 6-2s-2e, dk. Benedum & Trees' Arthur Owen 1, nw se sw 23-4s-3e, cor 2873 ft. Myers Bros.' Duckworth 1, c e½ sw ne 33-4s-4e, rig.

JERSEY COUNTY—Boyd et al's Wyman 1, nw se nw 32-7n-12w, sd 930 ft.

MARION COUNTY—Siegel & Schlosberg's Roddy 1, sw se sw 20-2n-3e, sd 2182 ft. Marion Oil Co.'s Wilson 1, ne ne se 18-3n-3e, dr 1315 ft. Hackman & Harris' (was Coleman-Blosser) Britt 1, nw nw nw 36-4n-1e, sd 1050 ft. Mahutske Oil Co.'s Nichols 1, se sw se 12-4n-4e, sd 2809 ft. Alexander et al's Pope 1, ne ne ne 26-3n-1w, sd 1494 ft. W. C. McBride's Clow 1, sw sw se 29-2n-1e, dr 1083 ft. Helmerich & Payne's Stephens 1, sw sw sw 35-3n-4e, spd, sd. Evans et al's Morey 1, se se nw 4-4n-1e, lcn abd. Valeira Oil Co.'s (was Schriver et al) Schreurer 1, se se ne 12-4n-1e, sd 1600 ft.

MASSAC COUNTY—Kahle et al's Harvick 1, sw sw sw 23-14s-3e, dr 2850 ft.

MONTGOMERY COUNTY—Schlosberg & Siegel's Nieman 1, c se sw 29-8n-5w, sd 811 ft.

POPE COUNTY—C. C. Whitlock et al's Anthis 1, nw nw ne 12-11s-5e, sd 1352 ft.

RANDOLPH COUNTY—W. A. Delaney & J. E. Mabee's Wilson 1, c e½ se ne 3-4s-5w, dr 3190 ft. Pioneer O&G Co.'s Johnie 1, se nw nw 28-6s-6w, sd 552 ft.

RICHLAND COUNTY—Mammoth P & R Co.'s McCauley 1, sw se nw 28-3n-9e, co 3146 ft. Sam Raitman's Richey 1, c ne nw 12-4n-14w, lcn. Ray & Alford's Franklin 1, nw nw ne 34-5n-10e, dk. Frost's Farris 1, sw sw se 18-3n-10e, p. 80 bbls oil per day, comp. Parker et al's Berry 1, se sw ne 22-2n-14w, spd, sd. Papoose Oil Co.'s Lynch 1, c ne nw ne 5-3n-10e, C & P. Bur-Kan Oil Co.'s Allen 1, c sw nw 27-4n-10e, dr 2600 ft.

SALINE COUNTY—Will Rogers et al's Saylor 1, se se se 3-10s-6e, sd 1125 ft. C. F. Bolton's Beagle 1, nw nw ne 13-9s-7e, sd 1000 ft.

SCOTT COUNTY—Gregory & Mechling et al's Foltz 1, nw sw ne 31-14n-14w, sd 1196 ft.

SHELBY COUNTY—E. Breaseale et al's Richardson 1, c nw nw 35-12n-14w, dr 198 ft. Ray Farrior's Fritz 1, ne ne ne 1-12n-2e, lcn.

WABASH COUNTY—Martin et al's W. R. Wood 1, ne se nw 31-1n-12w, dr 1095 ft. Deck & Hays' Provident Mutual Life Ins. Co. 1, c se nw 25-1s-13w, testing.

WARDS COUNTY—Dr. W. F. Schmidt's Strenne 1, ne nw ne 5-1n-14w, spd, sd. Leach Bros.' Lee 1, sw ne se 11-1s-10e, ur 6-in csg 2800 ft. Harry Cotton's Leibke 1, ne ne sw 20-1n-14w, c & p. Cotton & Laller's Hays 1, ne ne ne 4-1n-10e, lcn.

WASHINGTON COUNTY—Silvers et al's Paul 1, nw nw se 29-3s-5w, spd, sd.

WAYNE COUNTY—Gordon et al's Taylor 1, c nw sw sw 15-1n-7e, mim. Texas Co.'s Silverman 1, c e½ sw nw 16-3s-7e, td 3287 ft, dr plugs.

WILLIAMSON COUNTY — Edward C. Snyder's Flemming 1, c se ne 9-10s-2e, mim.

KANSAS

BARBER COUNTY—Palmer Oil Corp. et al's Warwick 1, c nw 29-31s-10w, ru, sd. Kansan Oil Corp.'s Mease 1, ne se se 27-30s-11w, sdo 4910 ft. Pryor & Lockhart's Pickens 1, cwl e½ sw 34-30s-14w, abn 4745 ft. Helmerich & Payne's Winter 1, nw nw sw 16-32s-10w, dr 4420 ft.

BARTON COUNTY—C. L. Price et al's Hammeke 1, ne ne sw 12-18s-12w, bailing. Martin & Foraker et al's Dick 1, ne sw sw 31-19s-11w, sd. Shell's Ehrlich 1, sw sw sw 1-16s-14w, dd to 3296 ft, 2800 ft oih. Ash et al's Frees 1, nw nw nw 34-16s-11w, dr 2980 ft. R. E. Day et al's Feltes 1, se se ne 14-16s-12w, sd 1875 ft. Shell's Eckart 1, se se sw 13-16s-14w, abn 3423 ft. Theyer Drlg. & Brouk's Soderstrom 1, se se nw 21-17s-13w, co 2825 ft. Sinclair Prairie's Oeser 1, ne ne se 17-16s-11w, dr 1993 ft.

BUTLER COUNTY — Reeves & Kinnan's Heim 1, sw sw sw 5-29s-3w, dr 3290 ft. Steinbuchel et al's Fox 1, nw se ne 25-26s-3e, sd 1010 ft. T. S. Dustin's Miley 1, se nw ne 17-27s-5e, sd 395 ft.

CHASE COUNTY—T. D. Duffy's Leedy 1, ne nw nw 26-22s-9e, sd 50 ft.

CHAUTAUQUA COUNTY—Harrison et al's Brown 1, ne se ne 19-34s-10e, sd 820 ft. I. W. Siegle's Temple 1, sw sw sw 31-32s-12e, sd 400 ft. Sooby et al's Davis 1, sw ne nw 29-33s-10e, testing.

CLARK COUNTY—Olson Oil Co.'s Lehman 1, se se sw 20-32s-21w, dr 5192 ft. Olson Oil Co. et al's Watkins 1, sw sw nw 23-32s-21w, sd 6660 ft.

COWLEY COUNTY—Smith & Price's Henderson 1, sw sw sw 25-32s-6e, abn 3370 ft. Earl Wakefield's Whitson 1, sw ne se 8-32s-4e, pb to 3292 ft, p. 40 bbls oil & 40 bbls wtr, 8 hrs. Dickey Oil Co.'s Kansas G & E Co. 1, ne ne ne 22-34s-3e, sd 3347 ft. Roth — Faurot's Fry 1, nw sw sw 8-31s-3e, dr 2660 ft. Trees Oil & Talbott's McKinn 1, ne ne nw 16-31s-6e, dr 780 ft.

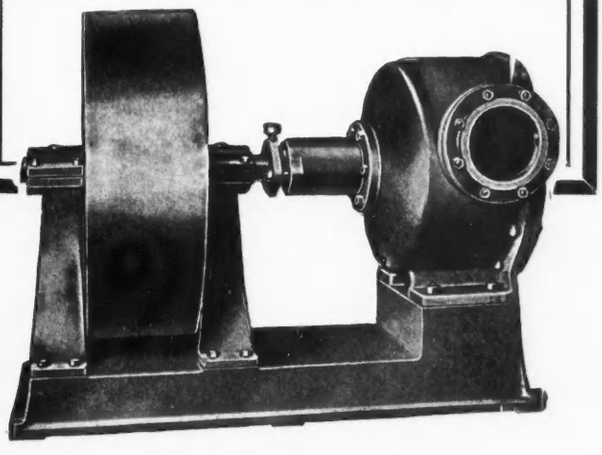
EDWARDS COUNTY—Douglas & Gear's Meade 1, se se nw 35-25s-16w, sd.

ELLIS COUNTY—P. G. Reynolds et al's Karlin 1, nw nw nw 13-12s-18w, ur 6-in csg. Skiles et al's Jensen 1, sw se ne 26-12s-18w, sd 2910 ft. Glimac Oil Co. et al's K. C. Life 1, se sw nw 5-11s-18w, set 7-in csg 3328 ft, rust. Colonial Oil Co.'s Hadley 1, se ne se 5-11s-18w, rig. Bradley Oil Co.'s Jensen 1, nw nw se 36-11s-19w, show sulphur wtr. C. L. Carlock's Heyle 1, se se nw 14-13s-16w, dr 3298 ft. Continental's Baumrucker 1, ne ne sw 25-14s-16w, dr 3030 ft. Helmerich & Payne et al's Stebbins 1, nw nw se 7-13s-20w, dr 3598 ft. J. J. Muth's Penney 1, c nl ne se 29-14s-18w, co 350 ft. Watchorn O&G Co.'s Brown 1, ne ne se 34-13s-17w, pot 515 bbls oil & lots wtr, 24 hrs, comp. Gen. Mach. & Tools Co.'s Jensen 1, sw se ne 26-12s-18w, run 6-in csg 3670 ft. Witt & Sheridan et al's Hall 1, nw sw ne 1-12s-17w, lcn. Hays & Sackrider's Windholtz 1, ne ne ne 2-13s-16w, dr 345 ft.

ELLSWORTH COUNTY—Colonial Oil Co.'s Hogy 1, nw nw sw 16-16s-10w, dr 2115 ft. Hinkle et al's Andrea 1, ne ne se 17-17s-10w,

The **VIKING**

General Purpose Rotary Gear Type Pump



Capacity: 1,050 gallons per minute.
Standard 8-inch belt driven.

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HOUSTON, DALLAS AND KILGORE, TEXAS

SECONDARY RECOVERY ENGINEERING

AIR & GAS REPRESSURING
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WHEREVER SUITABLE

PRELIMINARY ANALYSES
DEVELOPMENT PLANS
OPERATION CONTROL

RYDER SCOTT COMPANY
PETROLEUM ENGINEERS
BRADFORD PENNSYLVANIA

abn 3416 ft. Ralph Wixon et al's Peterman 1, sw sw sw 28-17s-10w, sd 1920 ft. Cities Service et al's Schroeder 1, c nl nw 29-17s-9w, dr 830 ft.

GRAHAM COUNTY—Continental and Cities Service' Trexler 1, c el w½ ne 15-9s-21w, lcn.

GRAY COUNTY—P. G. Reynolds' Watkins 1, c sw 32-28s-28w, rig.

GREENWOOD COUNTY — Whittaker & Johnson's Cannon 1, c el se nw 8-26s-13e, td 1504 ft, rng 5-in csg. John Nichols et al's Central Life 1, sw sw se 35-25s-12e, sd.

HARPER COUNTY—Franklin Drlg. Co.'s Walts 1, ne ne sw 24-34s-6w, brr.

HARVEY COUNTY—Allison & Fitzwilliams et al's Hawk 1, se sw ne 16-24s-1w, dr 3640 ft. Nat'l Ref. Co.'s Brown Bros. 1, nw se ne 22-23s-2w, dr 2255 ft.

JACKSON COUNTY—Lemmick Oil Co.'s Marble Savings Bank 1, c ne ne 26-9s-14e, sd 510 ft.

JEWELL COUNTY — Hollingsworth Bros.' Wolfe 1, nw sw se 14-4s-8w, sd.

LANE COUNTY—Phillips Pet. Co.'s John Kee 1, c se se 3-19s-30w, dr 3040 ft.

MARION COUNTY—Tom Palmer et al's Matz 1, sw sw se 8-19s-1e, abn 3520 ft.

McPHERSON COUNTY—Clyde Pulse et al's Boesker 1, se se nw 29-20s-1w, rig. Boyle & Grossman's Diener 1, se se ne 35-19s-1w, ur 6-in csg 3118 ft. Carter's Hoglund 1, c w½ sw nw 8-17s-3w, set 7-in csg 3347 ft, woc. Phillips' Galle 1, nw nw ne 11-21s-2w, dr 3275 ft. Archer & Crane's Templin 1, nw sw se 32-17s-3w, co 2200 ft.

MEADE COUNTY — Pacific Mid-West Oil Co.'s Rexford 1, ne se sw 8-30s-29w, sd 200 ft (correction). Barnett et al's Adams 1, sw sw ne 22-34s-30w, rot rig.

NESS COUNTY—Jones & Lane's Page Milling Co. 1, se se nw 36-18s-26w, sd 3265 ft. Marshall Drlg. Co. et al's Anderson 1, sw sw nw 23-16s-24w, sd. Trojan O&G Co.'s Moses 1, c sw nw 10-18s-25w, sd 500 ft. Continental's Olson 1, sw nw nw 5-18s-25w, td 4325 ft, swabbing.

PHILLIPS COUNTY—C. W. Davidson et al's Elliff 1, se ne ne 35-5s-18w, sd 575 ft.

PRATT COUNTY—Skelly et al's Adams 1, se nw ne 2-28s-11w, pb 4200 ft, Aw/6000 gals, made 23,700,000 cf gas, comp. Helmerick & Payne et al's Hoeme 1, se se ne 20-26s-1w, abn 4470 ft. Ohio's Howell 1, c sw sw 21-29s-15w, dr 3980 ft.

RENO COUNTY—Sam Schneider et al's Kroecker 1, ne ne ne 12-22s-5w, dr 3977 ft. Street & Butler's Kincaid 1, ne ne nw 13-24s-4w, rig abn. Carey et al's McPheeters 1, ne ne nw 22-26s-8w, dr 2770 ft. W. E. Witt et al's Fair 1, nw se se 4-22s-8w, est. 22 bbls oil daily, no test. Choen et al's Teter 1, se se sw 3-23s-5w, ru, sd. Westgate-Greenland Oil Co. et al's Popp 1, sw sw ne 7-25s-4w, dr 4095 ft. McCole et al's Mathews 1, sw nw nw 15-24s-10w, sd 419 ft. Skelly, Kimmel & Stewart's Gorham 1, sw sw se 32-25s-10w, rig.

RICE COUNTY—Skiles et al's Campbell 1, se se ne 28-19s-9w, Aw/2000 gals, p 104 bbls oil 4 hrs. Joe Aylward's Weihe 1, sw sw ne 23-18s-9w, dr 2525 ft. Price et al's Gemeinhardt 1, ne ne se 18-18s-10w, dr 1500 ft. Western Kansas' Bailey 1, sw sw nw 19-20s-6w, woc 129 ft.

ROOKS COUNTY—Producer Oil Co. et al's Ham 1, sw sw nw 25-7s-19w, sd 330 ft. Graham et al's Fike 1, sw sw sw 9-9s-17w, sd 3326 ft, p 50 bbls oil and 35 bbls wtr, 8 hrs. Witt & Sheridan et al's Morrison 1, nw se sw 29-10s-17w, rot rig. Elwell et al's Zimmerman 1, ne ne nw 15-9s-18w, rur. Colonial Oil Co. et al's Hancock Life Ins. Co. 1, nw sw sw 21-10s-18w, rot rig.

RUSH COUNTY — Wakefield & Brouk's Krebs 1, nw nw se 11-17s-16w, abn 3629 ft.

RUSSELL COUNTY—Emrichs et al's Anderson 1, ne se sw 33-15s-11w, sd. Jones & Shelbourne's Short 1, ne ne ne 12-15s-12w, dr 2970 ft. Phil-Han & Hinkle's Reinhardt 1, se se sw 19-14s-14w, co 3246 ft. Shields et al's Rogg 1, nw nw sw 28-14s-13w, dr 2625 ft. Parks et al's Gorham Est. 1, sw nw ne 19-15s-15w, ru. Jones & Shelbourne et al's Kuhnle 1, se se nw 4-15s-12w, cel. Kess et al's Reinhardt 1, ne ne sw 36-12s-14w, lcn.

SEDGWICK COUNTY—I. W. Murfin et al's Martin 1, se se nw 18-28s-1e, swb 45 bbls oil, 24 hrs. W. C. Talbott et al's Down Est. 1, se se nw 32-28s-2e, testing. Union O&R et al's Howell 1, sw sw sw 6-29s-1e, sd 2400 ft. Frank Hudson et al's Fulton 1, ne ne se 35-28s-1e, fsg 1550 ft. McKnabb et al's Garrett 1, se sw sw 18-29s-1e, sd 100 ft. Steinbuchel et al's McAdams 1, sw sw ne 28-29s-1e, set 12-in csg 1020 ft.

STAFFORD COUNTY—Hinkle et al's Moses 1, nw nw sw 9-22s-13w, td 3807 ft, may pb to K.C. lime. Torry & Feaster et al's Heggy 1, ne ne sw 26-33s-11w, dr 2400 ft; Negley 1, sw sw ne 23-22s-12w, dr 692 ft. Lindsay & Bailiere et al's Tiepermann 1, sw sw nw 31-22s-12w, dr 3663 ft. Cardinal and Carraker et al's Sittner 1, sw sw sw 4-22s-12w, dr 2920 ft. Rust et al's Sims 1, nw nw sw 8-23s-11w, abn 3729 ft. Carter's Andress 1, c nl se 2-21s-13w, rur. J. I. Shaffer et al's Newell 1, ne ne se 20-24s-11w, rig.

SUMNER COUNTY — W. M. McKnabb's Blair 1, sw sw sw 7-30s-1e, swabbing 3869 ft. Saco Oil Co. and Cameron et al's Phipps 1, sw se ne 24-30s-1w, sd. Hugh T. Jones et al's Stunkel 1, se se sw 2-30s-1w, rig. E. B. Shawver's Stewart 1, nw nw se 4-32s-3w, rig.

TREGO COUNTY—Carlock's Kinzel 1, sw sw sw 9-13s-22w, sd. Manning & Martin et al's Lynd 1, nw nw sw 16-11s-21w, rig abn.

WOODSON COUNTY—Charles Reeser et al's Weide 1, nw nw se 18-25s-14e, sd 1150 ft.

NORTH LOUISIANA

BIENVILLE PARISH—DeSoto O&G Co.'s Ashley 2, c sw se 15-16n-10w, ru and sd. Gulf's Goodpine 1, se sw 25-14n-8w, elev 157 ft, massive anhydrite 5303-5420 ft, coring 7034 ft. Hunt-Seaboard's Hodge-Hunt 1, se sw 36-17n-6w, rur (was carried Harrison 1, in sec 2-16n-6w).

BOSSIER PARISH—Union Prod. Co.'s Kerr 1, c se 24-17n-12w, 9⅝ in csg 5009 ft, coring 5120 ft.

CADDO PARISH—A. D. Robinson et al's Dickson 1, 22-20n-14w, 5-3/13 in csg 2400 ft, tested sw in Tokio, dd, td 2458 ft.

CALDWELL PARISH—G. W. Zeigen's La. Cent. Lbr. Co. 12, 20-14n-3e, dr 650 ft.

CATAHOULA PARISH—G. E. Foster et al's W. S. Peck 1, c s½ 39-10n-8e, woc 16-in csg 20 ft.

CLAIBORNE PARISH—W. L. McClanahan's J. T. Lewis 1, c w½ sw se 25-20n-7w, sd 5507 ft. Union Prod. Co. et al's Brownfield 2, c se nw 5-19n-5w, elev 235 ft, coring 8770 ft.

DE SOTO PARISH—Clear Lake Oil Co.'s Woolums 1, nw nw 29-12n-12w, cored sand so, sd for csg, td 2694 ft. Kingston Oil Co.'s Scott 1, ne ne 32-14n-13w, pumping wo gauge, td 2778 ft. La. Seaboard's Lawrence 1, sw ne 36-12n-14w, dk.

FRANKLIN PARISH—Southern Star Pet. Corp.'s Grayson 2, sw ne 36-12n-6e, rur.

LINCOLN PARISH—E. T. Oakes, H. D. Easton et al's N. L. Griggs 1, c sw 36-18n-1w, elev 199 ft cur titles preparatory to perf and testing Petitt lime 5932-41 ft, 5½ in csg 6121 ft, td 6260 ft, Travis Peak shale with slickensides.

MADISON PARISH—Continental's Singer 1, c ne ne 3-15n-11e, location inun., spd date advanced to May.

MOREHOUSE PARISH—W. J. Furlong, Jr., et al's E. M. Clark 1, 10-20n-7e, elev 103 ft, dr 5440 ft lime and shale (in lower Marine).

RED RIVER PARISH—Ark. Fuel Oil Co.'s Franklin Realty Co. 1, c ne nw 20-11n-9w, top anhydrite 4960 ft, coring 6410 ft.

SABINE PARISH—J. C. Sutton Oil Co.'s Sabine Lbr. Co. 1, se nw ne 23-7n-14w, dr 1510 ft (10,000 ft test).

TENSAS PARISH—H. M. Jones' Chicago Mill & Lbr. Co. 2, c ne sw 31-12n-10e, sd 460 ft (corrected depth), high water.

UNION PARISH—Joe Modisett et al's Frost 1, ne sw 14-21n-1e, elev 188 ft, top Travis Peak 4050 ft, 9⅝ in csg 4358 ft, top lower Marine 6161 ft, sd 7010 ft, may deepen to 9100 ft.

WEBSTER PARISH—Magnolia's Sexton 1, c sw ne 32-23n-9w, elev 225 ft, 13⅜ in csg 838 ft, top first anhydrite stringer 4175 ft, top massive anhydrite 4348 ft, dr 4955 ft hd lime and stone. Lunsford & Ferguson's Turner 1, 20-20n-8w, rur.

WINN PARISH—G. W. Zeigen's La. Cent. Lbr. Co. 13, 4-13n-1e, rur.

SOUTH LOUISIANA

ACADIA PARISH—Gulf's Broussard 1, 49-10s-2w, coring shale 9850 ft.

CALCASIEU PARISH — Union Sulphur's American Oil & Sulphur Co. 1, 16-10s-10w, abn 8002 ft.

CAMERON PARISH—Humble's Miami Corporation 1, Catfish Lake, 8-14s-5w, dr shale 8500 ft. Superior's State 1, in Gulf of Mexico, coring 8087 ft.

IBERIA PARISH—Texas Co.'s State 2-B, in Vermilion Bay, 20-15s-6e, dr shale 6748 ft.

JEFFERSON DAVIS PARISH—Continental's Fay 1, se of South Roanoke, 31-10s-3w, dr shale 10,833 ft. Union Sulphur's Calcasieu National Bank 1, Woodlawn area, 12-9s-8w, working over 8281 ft.

LAFOURCHE PARISH—Amerada-Louisiana Land & Exploration Co.'s South Coast 1, Raceland, 34-15s-19e, dr plug 9003 ft. Gulf's State PP 3, Timbalier Bay, 36-23s-21e, swabbing 6963 ft.

ST. BERNARD PARISH—Gulf's State RR 2, in Lake Borgne, 38-14s-15e, abn 5102 ft.

ST. MARTIN PARISH—Shell's Frederick 1, Arnaudville, 38-8s-5e, dr shale 9076 ft. Shell-Tide Water's Unit 1, w of Lake Verrett, 11-14s-12e, dr shale 6131 ft. Texas Co.'s State 4, Lake Mongoulois, 14-10s-9e, dr shale 4826 ft.

ST. MARY PARISH — Shell's Barbour 1, Glenwild, 21-15s-12e, dr shale 10,517 ft.

TERREBONNE PARISH—Fohs Oil Co.'s Buckley 1, Dulac, 77-19s-17e, driving piling; State 1, La Terre, 41-19s-19e, ready for barge.

MISSISSIPPI

CALHOUN COUNTY—Ed Spencer's J. C. Conner 1, se ne 12-24n-8e, spd, dr 1310 ft.

CLAIBORNE COUNTY—Claiborne County Dev. Co.'s Ruth Hayden 1, s½ se 55-11n-2e, elev 199 ft, top Vicksburg 675 ft, top Jackson 935 ft, top Cockfield 1346 ft, sd repr water pump, td 1455 ft, shale, strks sand and pyrites.

GEORGE COUNTY—Cleve Love et al's J. J. Newman Lbr. Co. 2, c sw 9-1s-8w, sd.

HINDS COUNTY—Cleve Love et al's Montgomery 1, sw se se 28-6n-4w, lcn. Black River Oil Co.'s Federal Land Bank 1, ne ne 11-15n-5e, elev 146 ft, sd 6018 ft, Wilcox black shale. Cleve Love et al's S. F. Johnson 1, ne se 29-6n-1w, woc 10-in csg 93 ft.

LAMAR COUNTY—Sun Oil Co. et al's Mrs. Kate Talley 4, se nw 33-4n-15w, elev 374 ft, dr 7940 ft sand streaks shale. Southern Miss. Pet. Corp.'s Morris 1, nw se 4-2n-14w, sd 50 ft.

PERRY COUNTY—Phillips Pet. Co.'s J. J.

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(see opposite page)
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Newman Lbr. Co. 1, se se sw 21-2n-10w, elev 210 ft, sd 6013 ft.

SIMPSON COUNTY—Goodwill O&G Co.'s Berry 1, se sw 33-2n-4e, dr 875 ft.

YALABOUSHA COUNTY—Acme Holding Co.'s S. D. Boyle 1, nw nw 33-25s-7e, elev 285 ft, arr run formation tester in Midway, depth not given.

NEBRASKA

JEFFERSON COUNTY—L. R. Page et al's Bonham 1, c se se 31-1n-1e, abn 3344 ft.

RICHARDSON COUNTY—Arab Pet. Corp. et al's Ogle 1, se se se 9-1n-14e, show free oil 2280-2300 ft, sd 3423 ft, granite.

OKLAHOMA

ADAIR COUNTY—B. L. Maddox's Penn Mutual 1, c s½ ne nw 5-16n-24e, dr 260 ft.

ATOKA COUNTY — Sheldon and Gardner Pet. Co.'s Lee 1, ne nw sw 2-4s-10e, td 2034 ft, to dd. Stanolind and Amerada's Ridgeway 1, nw ne ne 24-3s-9e, lcn.

BECKHAM COUNTY — Mid-American Oil Co.'s Biscoe 1-A, sw sw sw 28-8n-22w, dr 2435 ft.

BRYAN COUNTY — Southern Oil Co.'s Henry 1, c nw ne 10-8s-7e, dr 850 ft.

CADDO COUNTY—I.T.I.O. Co.'s Dome-Bo 1, c ne se 29-6n-10w, td 6900 ft, to test.

CARTER COUNTY—Lloyd & Noble's Revelle 1, sw sw se 21-3s-2w, sd 4028 ft.

CLEVELAND COUNTY—Harper & Turner's Pollock 1, c w½ nw nw 13-9n-2w, woc 6807 ft. H. R. Hollenback et al's Mantooth 1, nw nw nw 24-6n-1e, rog. W. A. Delaney et al's Bugher 1, se se sw 12-7n-2w, rot rig.

CHOCTAW COUNTY—V. K. Chapman & Lowe's Hallum 1, nw nw ne 4-7s-20e, sd 260 ft. J. A. True's Boby 1, nw se nw nw 17-7s-19e, sdo 2044 ft.

COAL COUNTY—Carter et al's Claytor 1, c w½ ne sw 27-2n-9e, co 6248 ft.

COMANCHE COUNTY—J. W. Wolfe's Costinus 1, sw sw se 30-4n-11w, spd. Frank Scott's Kuntz 1-A, se ne se 27-4n-11w, sd 2800 ft.

COTTON COUNTY—Bowers & Wise's Pendergraft 1, nw se sw 4-4s-12w, sd for rot tools.

CREEK COUNTY—M. W. Mosier et al's Holcomb 1, se sw ne 19-18n-8e, sd 3018 ft.

GARFIELD COUNTY—H. R. Hollenback et al's Clark 1, nw nw nw 34-21n-6w, dr 6772 ft.

GARVIN COUNTY—B. C. D. Edwards' Clark 1, ne ne ne 16-3n-3e, recem csg, woc.

GRADY COUNTY—Gulf's Thomas 1, sw nw nw 14-4n-5w, dr 9640 ft. Doyle Pet. Co.'s Huffine 1, nw nw se 30-5n-8w, dk.

GRANT COUNTY—Magnolia's Reynolds 1, ne ne se 19-25n-5w, fsg 5480 ft.

GREER COUNTY—J. I. Medlin et al's Broudie 1, nw nw nw 5-6n-20w, sd 90 ft. R. W. McDonald's Fite 1, se se nw 34-7n-21w, dr 160 ft. Gaunt & Baker's Parks 1, nw nw sw 29-7n-20w, dr 595 ft.

HUGHES COUNTY—Phillips' Becker 1, ne nw sw 8-5n-10e, to test. Pure's Rogers 1, se se ne 18-8n-12e, dr cem 3515 ft. Homer Doup et al's Bank 1, ne ne nw 7-7n-9e, rust & sd. Kenneth Ellison et al's Metro Life 1, c ne ne 14-7n-9e, sd 3685 ft.

JEFFERSON COUNTY—Massad & Swainsberger's Barrett 1, ne se se 14-6s-6w, sd 1890 ft. H. W. Weir et al's Hayes 1, se se nw 23-7s-7w, dk.

JOHNSTON COUNTY—Patton et al's McCrummens 1, sw sw ne 16-1s-6e, sd 1380 ft. W. T. Shelton's Chapman 1, c nw nw 26-4s-6e, dr 2684 ft.

KAY COUNTY—E. J. Shaffer et al's McKee 1, ne ne nw 20-28n-1w, sd 2500 ft. F. S. Freeland et al's Watson 1-A, ne nw nw 28-28n-1w, lcn abn. E. J. Shaffer et al's Rudolph 1, ne ne sw 27-29n-1w, cel. Clark C. Nye's Willin 1, se se sw 24-27n-4e, c & p. Helmerich & Payne's Scott 1, se se ne 20-28n-1w, cor 3565 ft.

KIOWA COUNTY—Hughes & Reese's Fultz 1, se se se 10-6n-18w, sd 1238 ft.

LOGAN COUNTY—Anthony & Marshall's Fruin-Eckman 1, se se sw 4-16n-1e, td 5285 ft, pb to 5181 ft, D & A. The Texas Co.'s Roper 1, c w½ sw se 22-15n-1e, sdo 5542 ft.

LOVE COUNTY—Sinclair Prairie's Peabody Seating Co. 1, ne ne ne 35-6s-2w, lcn.

MAJOR COUNTY—Ed Parsons' Patzkowsky 1, c nw¼ 10-20n-11w, rig.

MURRAY COUNTY—O. O. Owens' Gryer 1, ne se ne 34-1s-3e, dr 2685 ft.

MUSKOGEE COUNTY—F. E. Cusack's Elliott 1, c nl nw sw 20-15n-20e, rog. Cusack's Fee 1, ne sw se 20-15n-20e, spd 65 ft.

OKFUSKEE COUNTY—Mid-Continent's Inland 1, sw ne sw 10-13n-10e, dr 2703 ft. Broswood Oil Co.'s Lehman 1, nw sw nw 21-13n-10e, bldg rig.

OKLAHOMA COUNTY—W. O. Allen et al's Weaver 1, c e½ se nw 6-14n-3w, rur & sd.

OKMULGEE COUNTY—Phillips' Wood 1, nw sw sw 31-11n-13e, td 3209 ft, to attempt wtr shutoff. H. D. Detrick et al's McCann 1, nw se sw 33-14n-11e, lcn.

PAYNE COUNTY—Mid-Continent et al's Ramsey 1, sw sw nw 18-18n-2e, set 7-in csg 4707 ft, wtng. Sagemore Drlg. Co.'s Moore 1, se sw nw 17-18n-1e, rig.

PONTOTOC COUNTY—Union Dev. Co.'s Abbott 1, sw nw ne 34-3n-6e, sd 3320 ft. H. W. Lee's Weatherly 1, nw se nw 24-1n-7e, spd & sd. Riddle et al's Fee 1, nw sw se 11-3n-5e, dr 2499 ft.

ROGER MILLS COUNTY — Central Pet. Corp.'s Lambe 1, se se se 27-14n-21w, sd.

SEMINOLE COUNTY—H. V. Woodson & Marydun Oil Co.'s Gilliland 1, se se sw 24-11n-7e, td 3713 ft, prep to start up.

STEPHENS COUNTY—Coline Oil Co.'s Johnson 1, sw se ne 1-2n-8w, woc 8647 ft. Clark & Cowden's Simpson 10, ne se ne 11-1n-5w, pb 4170 ft, set 5 3/16-in csg, ru, sd. Helmerich & Payne's Pfile 1, sw sw sw 1-2s-7w, cor to 3973 ft, stuck dr pipe with core bbl.

TEXAS COUNTY—Hagey et al's Peck 1, c ne¼ 6-1n-13ecm, td 2842 ft, pull 5 3/16-in csg, set whipstock.

TILLMAN COUNTY—Tom Walker's Bowman 1, sw sw nw 10-4s-17w, sd 200 ft. Caven et al's Southerland 1, sw sw nw 35-4s-16w, sd 44 ft. Smith's Hammell 2, ne nw nw 6-5s-15w, sd 1200 ft.

WASHITA COUNTY—L. B. McWhirter et al's Fee 1, nw sw sw 34-8n-19w, sd 1910 ft.

EAST TEXAS BORDER COUNTIES

CASS COUNTY—V. A. Hughes & Co.'s Lyster 1, Wm. Bateman sur, claim so&g 1953-66 ft, dr 2050 ft.

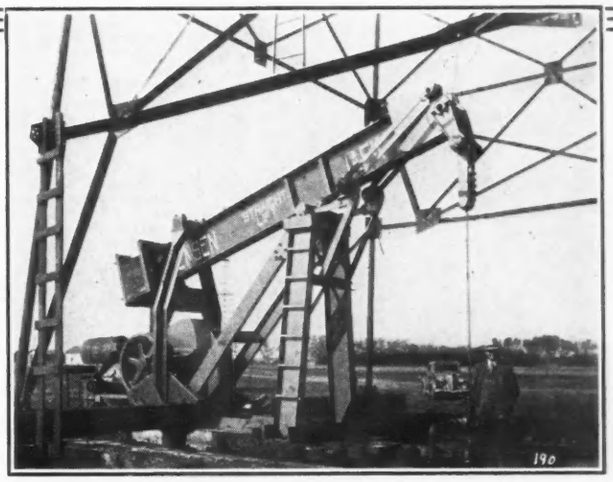
HARRISON COUNTY—Ark. Fuel Oil Co.'s C. M. Abney 1, Eason Little sur, elev 278 ft, reconditioning mud to dd after gas blowout in Hill, td 4820 ft. Eastern Shrevetex Oil Co.'s Mable George 1, J. S. Powell sur, pumping wo gauge, td 2505 ft.

PANOLA COUNTY—C. K. Crews' J. C. Graves 1, McGowan sur, sd 2531 ft. Preston et al's Rushing 1, Mannan Smith sur, owdd, td 2950 ft.

WEST TEXAS

(This report confined to south and east portion of the Permian basin and all Ordovician and Delaware projects.)

BREWSTER COUNTY—Floyd C. Dodson-B. A. Duffey et al's Texas American Synd. 1-A, near c ne ne GH&SA Ry. sec 66, blk 10, elev 4228 ft, top Delaware shale 2297 ft, top Simpson 5980 ft, dr chert and lime 6740 ft. G. H. Storey et al's J. P. Wilson 1, c se nw of T&St.



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L. Ry. sec 3, blk 212, elev 3609 ft, sd 2545 ft.

CRANE COUNTY—J. W. Hampton et al's Thaxton 1, W. L. Wilkinson sur, sd 2200 ft. Gulf Oil Corp.'s M. B. McKnight 3, near ne sw ne PSL sec 9, blk B-21, Ordovician test, elev 2693 ft, top Simpson, or middle Ordovician 6079 ft, top Ellenberger 6164 ft, tested dry at 6175 ft, coring ahead; W. N. Waddell et al 7, c sw se PSL sec 4, blk B-27, Ordovician test, elev 2537 ft, dr 1410 ft. Loffland Bros. Co.'s Reidland 1, sec of PSL sec 2, blk B-27, Ordovician test, elev 2570 ft, fsh 5434 ft. H. F. Wilcox O&G Co.'s M. B. McKnight 1, c se nw of G&MMB&A sec 9, blk 46, elev 2773 ft, Ordovician test, top Yates 2380 ft, dry and abd 7222 ft.

COKE COUNTY—Barnett Pet. Corp.'s J. E. Mims 1, sec T&P Ry. sec 39, elev 2352 ft, dr 1605 ft. H. E. Ogden et al's E. C. Rawlings 1, swc of H&TC Ry. sec 391, blk 1-A, dr 1185 ft.

CROCKETT COUNTY—Moore Bros. Corp.'s Paul Perner 1, c nw¼ I&GN Ry. sec 37, blk 2, elev 2560 ft, top lime 1600 ft. dr shale and lime 8785 ft. H. A. Ringle et al's A. C. Hoover 2, sw se nw GC&SF Ry. sec 14, blk 1, elev 2368 ft, sd 1892 ft. J. N. Simpson et al (was Magnolia's) A. C. Hoover 2, near ne ne se of B&M Ry. sec 2, blk FF, A-4500, elev 2521 ft, top salt 865 ft, top lime 1850 ft, lime pay 2038-58 ft, td 2067 ft, used 100 gals acid pumped 51 bbls initial. Stewart & Cormas' A. C. Hoover 1, c nw se of B&B Ry. sec 1, blk FF, elev 2380 ft, top salt 475 ft, top lime 1747 ft, show o&g, re-cem cas 1930 ft.

CULBERSON COUNTY—Ross Brewer, Collins et al's C. M. Caldwell 1, sw¼ of PSL sec 14, blk 42, Delaware test, elev 3819 ft, top black lime 1880 ft, run cas, td 1908 ft. Jarrell, Earl Bell & Harrison's C. M. Caldwell 1, c sw of PSL sec 15, blk 109, Delaware test, sd 151 ft.

JEFF DAVIS COUNTY—H. F. Wilcox O&G Co.'s Jones-Coffield 1, nec of H&TC Ry. sec 121, blk 4, sd. 3500 ft.

ECTOR COUNTY—J. D. Bodkins et al's W. P. Edwards 1, sw sw se T&P Ry. sec 37, blk 43, T-3-S, elev 2953 ft, top anhydrite 1842 ft, top salt 1860 ft, sd 4529 ft.

EL PASO COUNTY—Tri-State Oil Co.'s Chas. & L. M. Kinkel 1, ne ne ne sec 237 S.F. No. 7232, elev 3977 ft, sd 3462 ft.

FISHER COUNTY—Bond Oil Corp.'s Bertram 1, sec sw¼ labor 43, league 323, Bastrop C.S.L. sur, elev 1852 ft, base Sedwick 2764 ft, top Dothan 2800 ft, top Noodle Creek 2900 ft, hfw at 2953-58 ft, dr 2965 ft.

TOM GREEN COUNTY—Humble's Lewis-Wardlaw 1, near c ne se H&TC Ry. sec 5, blk 17, Ordovician test, elev 2142 ft, San Angelo lime 340 to 630 ft, milling on lost drill pipe, td 3811 ft.

GLASSCOCK COUNTY—O. B. Greathouse et al's Burns 1, sw¼ of W&NW Ry. sec 211, blk 29, lcn.

HOWARD COUNTY—H. L. Lockhart et al's Scott 1, sec of W&NW Ry. sec 67, blk 29, elev 2415 ft, dr 750 ft. W. F. McDermott et al's S. B. Capps-Anderson 1, swc T&P Ry. sec 18, blk 29, T-1-N, elev 2248 ft, show o&g, dr 2945 ft. Roy A. Westbrook et al's Great West Ref. Co. 1, near nec of T&P Ry. sec 48, blk 32, T-1-N, elev 2469 ft, gauged 368,000,000 ft of nitrogen and oxygen at 1460 ft, prod declined and cased off, fsh 3182 ft.

HUDSPETH COUNTY—Haymon Krupp Oil & Land Co.'s K. S. Briggs 1, nwc T&P Ry. sec 24, blk 73, Tsp. 7, dr 2585 ft; S. J. Thaxton 1, near sec ne se T&P Ry. sec 34, blk 74, Tsp. 6, dr 3535 ft.

LOVING COUNTY—Barnett Pet. Corp.'s W. D. Johnson 1-A, sec ne¼ T&P Ry. sec 12, blk 56, Tsp. 1, elev 3044 ft, top Delaware lime 3675 ft, top sand 3704 ft, shot 170 qts 3678-3728 ft, tested show oil, dd to new pay 3845 ft, flows by heads. Michigan O&G Co.'s M. Kyle 5, ne ne se T&P Ry. sec 20, blk 55, Tsp. 1, dr 3115 ft; M. Kyle 6, nw se ne sec 20, td 3971 ft, co after shot, swabs and flows 180 bbls oil daily; M. Kyle 7, lcn. Woodley Pet. Co.'s TP Land Trust 1-A, nwc n½ s½ T&P Ry. sec 21, blk 55, Tsp. 1, td 3963 ft, co after shot, flows 40 bbls daily.

MENARD COUNTY—G. A. Clements et al's A. H. Murchison 1, swc of sec 80, dr 445 ft. C. D. Hagerty et al's Callan 1, swc of e½ of J. M. Franz sur, sec 36, sd 200 ft.

MITCHELL COUNTY—Standard Oil Co. (Texas) W. L. Foster 1, lse 6, nw se nw T&P Ry. sec 44, blk 29, T-1-N, dr 1160 ft.

NOLAN COUNTY—Marland-Drake Drl. Co.'s E. W. Withers 1, c sw¼ T&P Ry. sec 65, blk 21, lcn.

PECOS COUNTY—Mike L. Benedum et al's J. C. Trees 1, sw sw sw H&GN Ry. sec 9, blk 8, Ordovician test, elev 2528 ft, top Delaware lime 4808 ft, top sand 4862 ft, sul w 4862-4995 ft, dry and abd. Aero Gas Ref. Co.'s Johnson-Skelly 1-a, n½ sec 40, H&GN Ry. sur, blk 8, elev 2446 ft, top lime 2150 ft, sd 2413 ft; Iowa Realty Trust 1, east corner H&TC Ry. sec 13, blk 10, mim. Harry Baker et al's White-Baker 1, nec of GC&SF Ry. sec 53, blk 194, mim. J. J. Dorr et al's Payton 2, nw part of H&GN Ry. sec 99, blk 8, elev 2440 ft, dr 115 ft. Ed. Falvey et al's Joe C. Trees 1, nwc nw nw H&GN Ry. sec 63, blk 8, sd 2055 ft. D. W. Francis et al's Westerman-Haggen 1-A, nwc of 186-ac lse, Rubian Phares sur, blk 166, elev 3155 ft, making gas, td 2960 ft, testing. L. B. Hoss & F. J. Downey's H. Cordez-Empire 1, nec of H&GN Ry. sec 81, blk 8, elev 2433 ft, top lime 1858 ft, flows by heads, testing 2043 ft. Magnolia Pet. Co. et al's J. H. McKee 1-a, near nw nw sw H&GN Ry. sec 24, blk 9, elev 2385 ft, (jkd. twice), top Simpson 4775 ft, cored sand with odor oil 5274-80 ft, sandy-lime 5280-89 ft, shale to 5294 ft, to set 9⅝-in csg 5192 ft. Thompson & E. R. Minshall's Michaelson 1, c nw nw of T&St.L. Ry. sec 24, blk 146, elev 3023 ft, dr 2585 ft. Stanley A. Thompson et al's Elsinore Cattle Co. 1, se¼ of GC&SF Ry. sec 53, blk D, Ordovician test, elev 3938 ft, show gas in core 7065-73 ft, cored 7081-87 ft, recovered 4 ft oil saturation, coring 7092 ft. Trans-Pecos Oil Co.'s F. M. Gallaher 1, ne ne nw T&P Ry. sec 9, blk 51, Tsp. 10, sd 1620 ft; Popham Land & Cattle Co. 1-B, s½ of GH&SA Ry. sec 235, blk 11 (3rd hole), sd 1540 ft. H. F. Wilcox O&G Co.'s Cerf 1, near c ne sw of T&St.L. Ry sec 27, blk 130, dr 530 ft.

PRESIDIO COUNTY—Brite Production Co.'s L. C. Brite 1, ne¼ of GH&SA Ry. sec 113, blk 12, tested 2½ bbls. oil daily at 4267-75 ft, lost hole, dr new hole 4205 ft.

REEVES COUNTY—Barnett Pet. Corp.-J. C. Hill & Conoco's Ely-Healy 1, c nw¼ of PSL sec 38, blk 71, Delaware test, elev 3166 ft, sd 3275 ft. Grisham-Hunter Corp.'s T. P. Land Trust 1, ne¼ T&P Ry. sec 40, blk 58, Tsp. 6, lcn. C. R. Mallison-Sid W. Richardson et al's Eliza M. Brown 1, near c sw¼ of H&GN Ry. sec 62, blk 4, dr 2285 ft. Ohio Oil Co.'s Popham Land & Cattle Co. 1, nw¼ of T&P Ry. sec 18, blk 54, Tsp. 10, sp and sd.

RUNNELS COUNTY—H. C. Hantho & Sherman Nelson's Bert Fletcher 1, E. C. Good sur No. 58½, elev 1769 ft, top Palo Pinto lime 4030 ft, top Strawn 4220 ft, s/o&g with w at 4381 ft, pb to 4360 ft, gun-perforated pipe, used 10,000 gals acid, tested water and sd. Homer Price & A. E. Koener's J. C. Beddo 1, subdiv No. 51, D. Diaz sur, sd 3433 ft.

SCHLEICHER COUNTY—John M. Cooper et al's Bert Page 2, c ne se GH&SA Ry. sec 40, blk L, elev 2289 ft, Ordovician test, sd 5000 ft. Tex-Tor Oil Corp.'s Judkins-Spencer 1, c sw¼ of A. & B. Ry. sec 33, blk A, elev 2235 ft, Ordovician test, co 5450 ft.

SCURRY COUNTY—Robinson Drl. Co.'s A. C. Martin 1, c nw sw H&TC Ry. sec 147, blk 97, elev 2234 ft, top lime 1514 ft, td 3515 ft, pb to 2590 ft, shot 300 qts 2420-92 ft, filled 600 feet with oil, testing. T. G. Shaw Oil Corp.'s First Nat'l Bank (Ft. Worth) 1, c nw¼ H&TC Ry. sec 112, blk 97, elev 2214 ft, top lime 1568 ft, fsh 2750 ft.

STONEWALL COUNTY—Gen'l Crude Oil Co.'s J. D. Smith 1, sec of H&TC Ry. sec 371, blk 2, 13 mi n Rotan, dr 315 ft.

SUTTON COUNTY—Ordovician Oil Co.'s J. T. Evans 1, nec sec 1, blk V-26, Lucy Stubblefield sur, elev 2126 ft, top Canyon, trace o&g, 2320 ft, top Strawn, with oil odor in water 2860 ft, top Bend lime, 3198 or 3315 ft, dr 3985 ft.

TERRELL COUNTY—R. A. Basurto et al's J. H. Phelps-Bates 1, near sec nw¼ sec 5, G. W. Turley sur, A-4, Ordovician test, elev 2185 ft, sd 5600 ft. D. & S. Oil Co.'s Sam Bell 1, near swc ne sw of E. L. & RR sec 68, blk D-7, sd 345 ft.

UPTON COUNTY—W. D. Riser et al's King 1, ncw n½ MK&T Ry. sec 8, blk 3, sp and sd. Choate & Hogan's S. E. Carter 1, H&TC Ry. sec 210, blk 6, mim.

WARD COUNTY—Bahan, Rhodes & Tompkins' H. A. Spencer 1, c cor of H&TC Ry. sec 41, blk 34, elev 2610 ft, sd 405 ft. M. J. Delaney, Inc.'s J. E. Cooper 1, w¼ of H&TC Ry. sec 43, blk 34, elev 2558 ft, top anhydrite 1260 ft, dr 2915 ft. L. B. Hoss & F. J. Downey's R. Avery-Atlantic 1, s¼ H&TC Ry. sec 36, blk 1, elev 2407 ft, dr 610 ft; Viola Meyers 1, sw-80-ac of H&TC Ry. sec 17, blk 32, sp and sd. Magnolia Pet. Co.'s Geo. Sealy 2-46 ne sw ne of G&MMB&A sec 46, blk F, elev 2713 ft, Rustler lime 1725-45 ft, top anhydrite 1595 ft, top lime 2658 ft, dr 2700 ft. R. G. Patillo et al's Blair-Republic 1, n cor of H&TC Ry. sec 5, blk 32, dr 665 ft. Schkade & Patillo's Dorr 1, near sec H&TC Ry. sec 35, blk 1, elev 2405 ft, sd 1863 ft. Frank T. Pickrell, Jean E. FitzPatrick, Dodson et al's H. B. Carr 1, c w¼ of n¼ of H&TC Ry. sec 125, blk 34, Delaware test, dk; F. I. Dyer 1, w¼ of n¼ of H&TC Ry. sec 135, blk 34, Delaware test, dr 115 ft.

SOUTH TEXAS

SAN ANTONIO DISTRICT

BASTROP COUNTY—Bibb's Lentz 1, Wilkinson sur, dr plugs 5½-in 2443 ft. Southern Cross' Smith 1, Blalock sur, dr ch 1850 topped 1663 ft.

BEXAR COUNTY—Ball & DuBose's Miller 1, Christopher sur, sd 397 ft, changing boilers. Parsynsen's Fee 1, Lindsay sur, dr 900 ft. Watson's Crouch 1, Gortaris sur, sp.

CALDWELL COUNTY—Brady & Pummel's Jackson 1, Morris sur, dr 2548 ft. M & R's Dunavant 1, Williams sur, dr 656 ft. Mac-Wag-Tree's Roberts 1, House sur, dr 2307 ft. Whitley's Jennings 1, Morrison sur, set sur csg, woc.

DIMMITT COUNTY—Teas & Maryland's McKnight 1, I&GN RR sur, dr 5815 ft.

EDWARDS COUNTY—Auld's Henderson 1, sec 46, sd 3185 acct weather. Carter's Sweeten 1, GC&SF sur, dr 5280 ft. Evans & Love's Brown 1, sec 77, dr 5115 ft.

GUADALUPE COUNTY—Gallagher's Roberts 1, Darst sur, lcn. Kallison's Burris 1, Nash sur, coring 2810 ft. Kretier & Douglas' Oliver 1, Smith sur, sd 2370 ft. Riddle's Krueger 1, Thompson sur, dr 1075 ft.

KENDALL COUNTY—Landon & Holifield's Sidensticker 1, Rodriguez sur, sd 703 ft.

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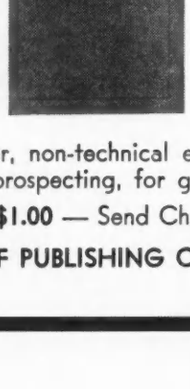

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MILAM COUNTY—Tuxedo's Graham 1, Cronea sur, dr 150 ft.; Graves 1, Robertson sur, dr 260 ft.

REAL COUNTY—Smith et al's Love 1, sec 5 HE&WT RR sur, lcn.

ZAVALA COUNTY—Wilcox's Gilliam 2, sec 11, attempting to pb to 3956 ft, will perf 3926-38 ft, wtr hindering job, td 3983 ft.

LAREDO DISTRICT

DUVAL COUNTY—Circle's Southland 1, sec 5, coring 4387 ft. Dovre's Hagist 1, sec 265, sp. C. K. Gravis' Frederick 1, Gibson sur, dr plugs & testing 10561/2 ft. Frank Gravis' Megerle 1, Broyles sur, ru & sd, will lay full line. Hougen's Patton 1, sur 148, dr 4817 ft. Magnolia's DCRC 1, sur 61, coring wtr/snd 3464 ft; Lopez 1, sur 82, dr 5038 ft.

JIM HOGG COUNTY—Stephens' Gruy 1, blk 13, Kohler subd, drk & ru.

LA SALLE COUNTY—Reed's Yeager 1, sur 39, sd 1156 ft.

McMULLEN COUNTY—Cities Service's Morris 1, Perieda sur, mim. Jones' Ezzell E-1, sec 24, sp. Rowan & Nichols' Rhode 2, sec 21, ru.

STARR COUNTY—Lowe & Ely's Gonzales 1, por 72, perforating in snd, 970-95 ft, td 3020 ft.

WEBB COUNTY—Boysen & Jones' Watkins 1, sec 20, set csg & sd 200 ft. Bridwell's Billings 1, sur 36, reaming 1920 ft. Highland's Garcia-Villareal 1, sur 338, lcn. Lemp's Clark 1, por 33, sd to clear titles 1326 ft.

ZAPATA COUNTY—Brown's Gutierrez 1, blk 12, dr 1250 ft. Edwards' Garza 1, blk 96, mir.

CORPUS CHRISTI DISTRICT

BROOKS COUNTY—Standard of Texas' Mestina 3, (lse 2) sh 11, dr 3151 ft.

COLORADO COUNTY—Coyle Concord's Broussard 2, Dufner sur, ru.

DEWITT COUNTY—Davis' Afflerbach 2, Crisswell sur 44, spud.

GOLIAD COUNTY—Standard of Texas' Williams 1, Williams sur, coring 4720 ft. Swiger's Wood 1-B, Shearn sur 10, may pump, 3500 ft oih, cp 60 lbs, swabbed 40 bpd.

HIDALGO COUNTY—Morton's Guerra 1-A, por 41, ru woo.

JACKSON COUNTY — Magnolia's West Ranch 1, Musquiz sur, dr 2710 ft.

JIM WELLS COUNTY—Hill's Kuether 1, sur 235, prep to re-dr 3344 ft. Southern Minerals' Hawkins 1, sh 3, dr 3510 ft.

KLEBERG COUNTY—Cinco's Kellam 1, sec 53, dr below 1280 ft. Magnolia's Dietz 1, sec 7, dr 5690 ft.

LIVE OAK COUNTY—Chew & Hantho-Nelson's Bell 1, Parks sur, dr hrd sh 3021 ft. Loma's Striddle 1, Turner sur, dr 150 ft. Stieren's Lange 2, Adams sur, ru.

NUECES COUNTY—Andrade's Dunn 1, Martinez sur, lcn. Camp's Wardner 2-A, Chas. Stratton subd, dk. Phillips' Clark 1, B.S.&F. sur No. 419, lcn. Renwar's McKinzie 1, B.S.&F. sur No. 419, ru, prep to sp; Morgan 1, BS&F sur No. 413, ru. Richardson's Chapman 1, sec 43, wo dr pipe to dd, reported perf 5416-26 ft with 28 shots, tested sw. Rutherford's Stewart 1, J. K. Dennan sur No. 418, mim. Southern Minerals' King 4, sec 6, woc, 4220 ft. Texon's Horne 1, Palo Alto gr, still dk; Sevier 3, Longoria gr, woc, squeezed, tested sw through perfs 6688-98 ft, 6668-78 ft, 6680-90 ft, td 7110 ft. Union's Galladay 1, Agua Dulce gr, running csg, to test snd & sndy sh with gasoline show 6733-46 ft, td 6785 ft; Rivers 4-A, Palo Alto Martias Garcia gr, ru; Simmonds 1, Agua Dulce gr, cor 7975 ft.

REFUGIO COUNTY—Continental's Scott 1, Dono Reojas sur, ru. Hogan's Kelly 1, James Power sur, tested sw through perfs above 6437 ft. Union's Power 9, Refugio Town Tract gr, pb from 8010 ft to 6800 ft snd, will perf.

SAN PATRICIO COUNTY—Bob's Green 2, Williamson sur, sd 6510 ft. Plymouth's Brigham 1, sec 62, dr 4166 ft. Schwab's Lane 1, sec 12-A, dr 3898 ft.

VICTORIA COUNTY—Echols' Dunsuth 1, Perez sur, dr 5675 ft.

WILLACY COUNTY—Magnolia's Armendiaz 1, Carricitos gr, cor 7625 ft.

TEXAS GULF COAST

CHAMBERS COUNTY — Salt Dome and Standard of Texas' State 1, Galveston Bay, woc 268 ft.

FT. BEND COUNTY—Medford & Burke's Woods 1, s of Blue Ridge, Magnolia Place subdivision, abn 6512 ft.

HARRIS COUNTY—W. S. Howell's Root 1, Battleground prospect, A. McCormick sur, dr shale 1007 ft.

JEFFERSON COUNTY — J. E. Harwell's State 1, in Gulf of Mexico, woc 165 ft. Glenn H. McCarthy's Broussard Hebert 1, Cheek area, C. Hillibrandt sur, testing 7727 ft.

MATAGORDA COUNTY — Pierce Estate's Fee 1, n of Van Vleck, I&GN sur, woc 6400 ft. Sun's Robbins 1, n of Citrus Grove, G. H. Vandeveer sur, dr shale 8806 ft.

TYLER COUNTY—Navarro Oil Co.'s Rice 1, Warren area, BBB&C sur, sec 11, abn 5188 ft.

WHARTON COUNTY—Strake's Strunk 1, Lissie area, L. P. Jennings sur, dr shale 8300 ft.

MICHIGAN

ALLEGAN COUNTY—Frank Vahue's Chadbourn 1, 28-2n-13w, dr 1465 ft. Lenoran Pet. Co.'s Delegowski 1, 22-4n-12w, dr 750 ft. Huges Heinig's Lundburg 1, 29-3n-14w, dr 600 ft. Adrian Stellard's Schafer 1, 29-3n-12w, mim. S. B. Hood's Wright 1, 9-3n-13w, dr 1350 ft. Fletcher Carcallen's Dam 1, se nw sw 3-4n-14w, dr 110 ft.

ARENAC COUNTY—R. L. Hill's Reinhart 1, 25-19n-5e, rig. Sterling Drlg. Co.'s McFarlan 1, 34-19n-4e, dr 1200 ft. R. B. Tamblyn's McFarlan 1, 34-20n-3e, lcn.

BAY COUNTY—Charles Weller's Dewyer 1, 20-16n-3e, Dundee 3273 ft, dr 3642 ft. Olympia Oil Co.'s Hossler 1, 9-18n-3e, dr 1200 ft. Gulf's Marston 1, 1-14n-4e, Dundee 2735 ft, so 2801 ft, water 2956 ft, pb to 2890, to acidize. Stork Oil Co.'s Century 1, 9-17n-3e, csg 5 in 3037 ft. Century Oil Co.'s Wilson 1, 27-17n-3e, fsg 2802 ft.

CALAHOUN COUNTY—Mar-Cal's Woods 1, 13-2s-6w, rig. Verona Oil Co.'s Fruin 1, 29-2s-6w, dr 100 ft.

CLARE COUNTY—James A. McKay's Fee 12, 24-18n-5w, r 1530 ft. Big Basin Oil Co.'s Rilett 1, 26-17n-3w, dr 110 ft.

GLADWIN COUNTY—Swanson Oil Co.'s Vantick 1, 30-17n-2e, dr 990 ft. Mammoth Oil Co.'s Oard 1, 25-18n-1w, 5-in 4045 ft. W. E. Ross's Kinyon 1, 18-18n-2e, dr 1100 ft. Rex Oil Co.'s Auer 1, 22-18n-2e, dr 900 ft.

GRATIOT COUNTY—Bliss Trustee's Martin 1, 26-10n-3w, dr 2100 ft. Henry Kritzman's Nickert 1, 33-11n-4w, rig.

ISABELLA COUNTY — J. V. Wicklund's Lawens 1, 24-15n-5w, dr 450 ft. Cryden & Rowmor's Smith 1, 35-15n-5w, dr 3680 ft.

KENT COUNTY—Barton & Leland's Oudermeulen 1, 29-5n-12w, dr 1769 ft.

MECOSTA COUNTY—Sun's Robart 1, 29-16n-7w, dr 1300 ft. Jetter Oil Co.'s Deakins 1, 28-13n-7w, dr 310 ft.

MIDLAND COUNTY—Sun's State B-1, 5-16n-1w, Dundee 3803 ft, td 4034 ft, 2000 ft fluid, shot 40 quarts nitro, testing; Consumers Power 1, 9-16n-1w, rig. Chapman Oil Co.'s State 1, 27-16n-1w, dr 1900 ft. C. W. Teater's Tushingham 1, 26-16n-2w, fsg 810 ft.

MONTCALM COUNTY — Socony-Vacuum Oil Co.'s Hansen 1, 22-12n-6w, rig.

NEWAYGO COUNTY — Midstates Corp.'s Eichenberger 1, 7-16n-11w, r 3716 ft.

ROSCOMMON COUNTY—Maynard Smith's Eggleston 1, 32-21n-2w, dr 3100 ft.

SAGINAW COUNTY — Weber Oil Co.'s Uebler 1, 9-11n-6e, dr 2800 ft. Darke Brother's Rockwell 1, 5-11n-3e, dr 2068 ft.

UTAH

GRAND COUNTY—Columbia-Crude Corporation's Roth-Government 1, ne sw 12-25s-20e, dr 2440 ft.

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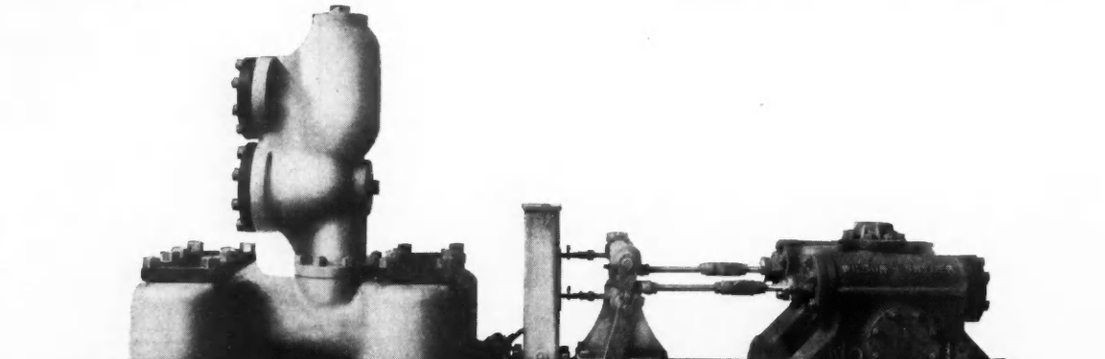

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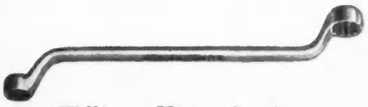
J. H. Williams & Co., 75 Spring St., New York, announces the addition of three new double-head, double-offset, 12-point Box "Superrenches" to its line. These wrenches, designed for heavy service, range in length from 23 to 27 inches with openings from 1-7/16 to 2⅜ inches. They are unusually strong and are designed to permit work in very close quarters. Their extra length provides great leverage.



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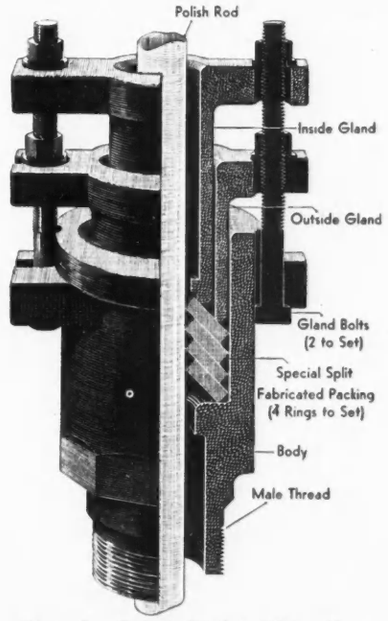
These new "Superrenches" are forged from chrome-molybdenum steel, heat-treated and finished in chrome-plate.

POLISH ROD STUFFING BOX
The Hercules Tool Company

Hercules Tool Company, Tulsa, recently added a new polish rod stuffing box to its line of patented oil-well specialties. This new box has one inner gland, one outer gland, and four packing rings of a special fabrication. Packing is adjusted by two bolts which hold glands in place.

According to the manufacturer, the special packing will last from three to six months on wells where the conventional type stuffing box must be repacked every few days. At the time of installation, only the edge of the packing will contact the polish rod. Soon, however, the contacting edges of the packing rings wear down, permitting the entire thickness of the packing to contact the rod, which forms a perfect seal and lasts indefinitely. The packing polishes and glazes the polish rod regardless of the condition of its surface.



Hercules Polish Rod Stuffing Box.

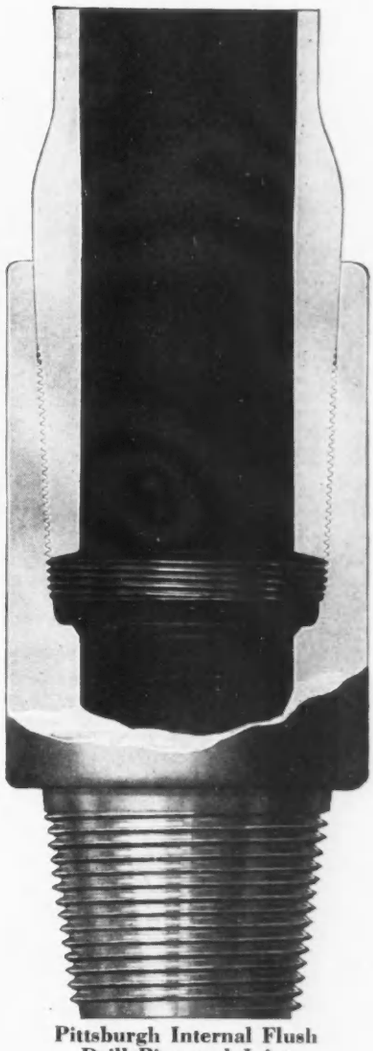
Because the packing follows the polish rod in its travel from a perpendicular line, this box needs no "wabbler." Packing will not burn out on wells periodically pumping off, since it absorbs enough oil to permit adequate lubrication of polish rod while no fluid is being lifted. A perfect pack is obtained regardless of the size of polish rod used or the length and frequency of the strokes. This polish rod stuffing box is made in all sizes.

INTERNAL FLUSH DRILL PIPE
Pittsburgh Steel Company

Pittsburgh Steel Company, Pittsburgh, Pennsylvania, recently placed on the market the Pittsburgh special external upset-internal flush drill pipe which is available with both right-hand and left-hand threads. All thread sizes, taper and form conform to A.P.I. standards.

The importance of effective shoulder seal is increased with external upset pipe. Also in conformance with best drilling experience the brunt of the wear from side wall contact is taken by a conventional type tool joint which is larger in outside diameter than the largest outside diameter of the pipe. The dimensions and physical characteristics of the tool joint are designed to withstand this wear.

The use of internal flush drill pipe permits decreased pump pressures of from 25 to 40 percent, with resultant savings in fuel, boiler equipment and wear and tear on pumping units, according to the manufacturer. It permits the use of larger core barrels and facilitates coring. The descending mud has a free passageway and more readily washes away the cuttings from the bit area, flushing the bit with sufficient force left to bring the cuttings effectively to the surface.



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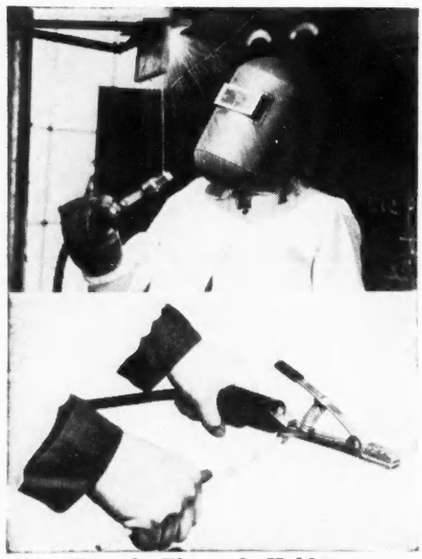
JOE M. HALLAMAN MANAGER

AIR CONDITIONED FOR YEAR 'ROUND COMFORT

holder and causing arcing; use of heavier copper jaws to assure maximum conductivity and prevent sticking of the electrode to the holder; grooving of the jaws for vertical and overhead as well as flat welding; a hollow fibre handle, correctly proportioned to fit the user's hand and afford a positive grip; and a fully insulated thumb lever and non-groundable sturdy spring.



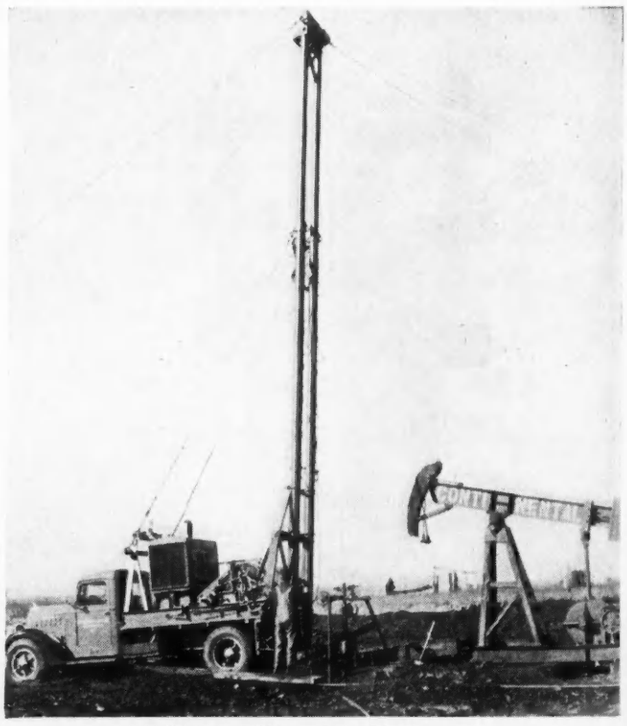
Lincoln Electrode Holder.

The holder will accommodate any size electrode up to and including ¼-inch.

CLEAN-OUT MACHINE

Wilson Manufacturing Company

Wilson Manufacturing Company, Wichita Falls, Texas, is making a clean-out machine with double mast for wells as deep as 4300 feet. The mast is collapsible through a combination of 6⅝- and 5-3/16-inch seamless pipe. It is raised and telescoped



Wilson Clean-Out Machine

with one line off the drum of the hoist. The mast has three sheaves, equipped with heavy-duty bearings, which are pressure lubricated.

This machine is capable of handling 2½-inch tubing in wells up to 4300 feet deep.

This Week with the Industry's EQUIPMENT SUPPLIERS

Collins Named Representative for Axelson Manufacturing Company

Axelson Manufacturing Company, Los Angeles, has appointed H. D. Collins field engineer and special representative, covering the Mid-Continent. He will make his headquarters in Tulsa.

H. D. COLLINS
Field Engineer and Special Representative for Axelson Manufacturing Company.

Collins spent more than 12 years with Gulf Oil Corporation and has been prominently identified with Mid-Continent manufacturing operations for many years. As an authority on subsurface oil well pumping methods and practices he has contributed largely to A. P. I. standardization and development of modern underground pumps, sucker rods and tubing as well as having developed equipment for handling and caring for same.

Long active in engineering and A.P.I. activities he is at the present time chair man of the Mid-Continent Committee for standardization of pumping equipment. He is also a member of the tubular goods committee of the Institute.

Until his return to Tulsa early in the spring Collins will reside in Los Angeles, studying Axelson manufacturing and operating methods while at the same time gathering information relative to prevalent production methods in California fields.

Marmon-Herrington Company Occupies New Plant

Marmon-Herrington Company, Indianapolis, Indiana, recently completed and is occupying a new plant, located on West Washington Street at Harding, in Indianapolis.

The company purchased the plant and 16-acre tract of Duesenberg, Incorporated, in October. All of the buildings were completely modernized and the office building re-decorated by the company before occupancy.

The new property is located at the junction of the Big Four and Belt railroads on U. S. Route 40 and includes two large brick and structural steel factory buildings and a modern two-story, fire-proof office building. The firm's assembly line occupies one of the factory structures, and its machine shops and experimental laboratories the other.

Westinghouse Advances Frenger, McCarty, and Stohr

R. A. McCarty has been appointed manager of the small motor division of Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pennsylvania, succeeding R. F. Frenger. He will make his headquarters at the company's plant in Lima, Ohio. McCarty became connected with the company as a student engineer following graduation as an electrical engineer in 1903 from the University of Tennessee. Beginning as a tester, he entered the power engineering division in 1906 and three years later was assigned to motor engineering. In 1910 he was made engineer in charge of insulation design and became section engineer a year later in the power engineering department.

In 1928 McCarty was appointed division engineer and two years later became manager of power engineering department. He was named manager of the generator division in 1935 which position he held until his recent appointment.

F. H. Stohr succeeds McCarty as manager of the generator division with headquarters at East Pittsburgh. Formerly manager of generator sales, Stohr joined the company in 1922 and has held various positions in connection with the negotiation work on power apparatus. He is a graduate of the University of Iowa.

Frenger has returned to East Pittsburgh to the vice president's staff for other special duties, following completion of the transfer of the company's small motor activities to Lima from Springfield, Massachusetts, during 1937.

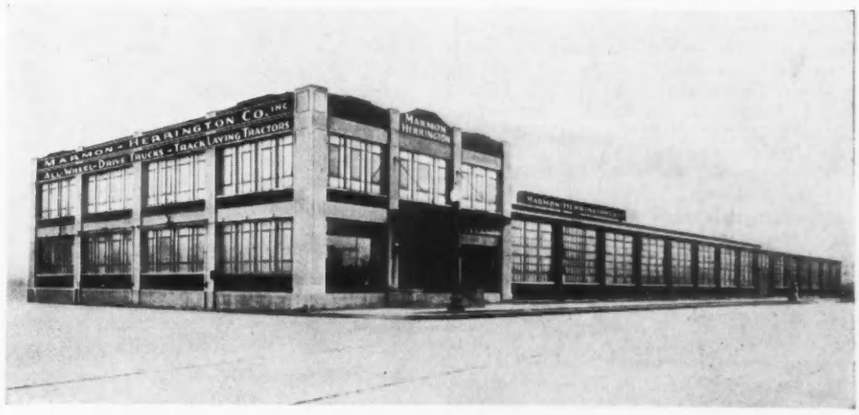
Federal Motor Truck Company Elects Ruddon President

Federal Motor Truck Company, Detroit, Michigan, has elected R. W. Ruddon president, succeeding M. L. Pulcher who recently resigned. Pulcher had been president of the company since its formation in 1910, and Ruddon was formerly vice president and general manager.

R. W. RUDDON
New President, Federal Motor Truck Company.

Ruddon was with General Motors Corporation when executive offices were first established at Detroit. He left to go to Michigan Copper & Brass Company, and subsequently joined Federal Motor Truck Company in 1914 as secretary to the general manager.

During his 24 years with the company, Ruddon has occupied posts of executive importance in every branch of the business and has seen the output grow from 60 trucks a month to its present capacity of 1000 units.



New Plant of Marmon-Herrington Company, at Indianapolis, Indiana.

Axelson Sales Force Hold Golf Tournament

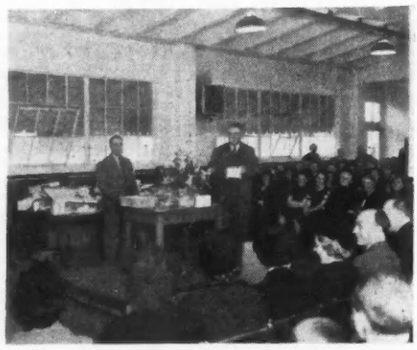
Inaugurating the first of a series of semi-annual golf tournaments, members of Axelson Manufacturing Company's sales department at Los Angeles played Rio Hondo course December 18.

The tournament, under the direction of R. M. Humphreys and Alvin Zwerneman, brought together all of the company's California store men and salesmen as well as executives of the company and members of the sales and order departments.

Tied for first place were Alvin Zwerneman and Ray Conger. G. A. Axelson, J. C. Axelson and Abe Haglund were among the runners up.

Christmas Party for Lane-Wells Employees

Lane-Wells Company, Los Angeles, tendered to its 387 employees a Christmas party on December 24, at which opportunity executives of the company distributed cash bonuses and presents among the personnel.



Walter Wells and Bill Lane distributing presents among employees at a Christmas party.

As part of the Christmas festivities, Harry Quintrell, oldest employee in years of service, presented a bronze plaque to Bill Lane and Walt Wells. Walter Wells, president, declared that his company's 1937 business was just twice that of 1936 and that orders on hand, plus the general favorable business outlook, predicates an equal increase for 1938.

Houston Oil Show Declares Refund to Exhibitors

In accordance with the non-profit policy of the Oil-World Exposition Association, John R. Suman, vice president of Humble Oil & Refining Company and president of the association, has announced that a 20 percent refund will be made on the total amount paid for exhibiting space to all those who exhibited in the 1937 exposition.

The next oil show in Houston will not be held until 1939. The definite dates for this exposition will be decided by the board of directors at a meeting to be held early in 1938. The time, however, will be in the spring instead of in October as it was in 1937. Before deciding on the 1939 show a questionnaire was sent to all exhibitors regarding the frequency with which oil shows should be held in Houston. Up to the present time, 193 replies have been received as follows:

Number of manufacturers or supply houses who want exposition every four years at Tulsa and every four years at Houston—9.

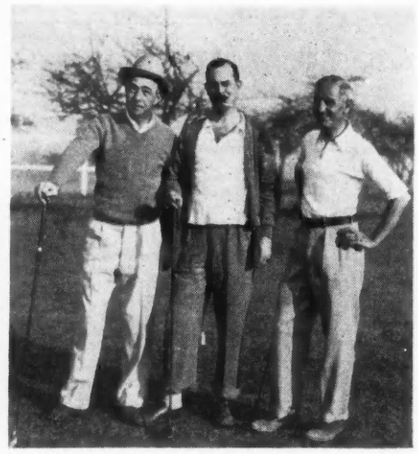
Supply houses satisfied with either every two years or every four years at both Houston and Tulsa—1.

Manufacturers who want exposition every 18 months at Tulsa and every 18 months at Houston—1.

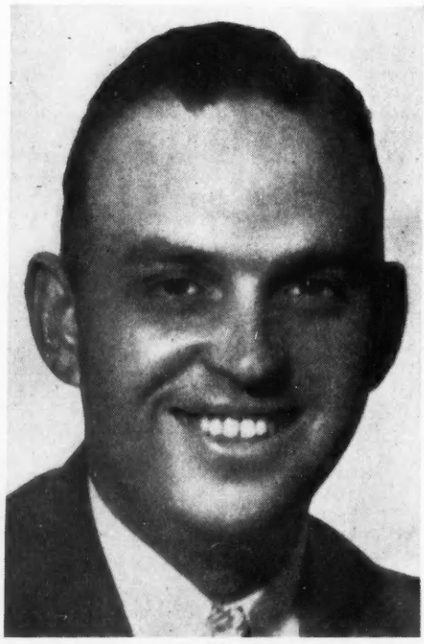
Manufacturers and supply houses satisfied to have exposition at Houston every four years provided Tulsa agrees to have exposition at Tulsa every four years—2.

Number of companies who want the Oil-World Exposition held in Houston every other year, alternating with the International Petroleum Exposition at Tulsa—180.

Plans for the accommodation of more exhibitors, the necessity for which was clearly indicated by the 1937 show, are now being laid and final decision as to the type of construction to be used for exhibits not located in the Coliseum will be made at a meeting of the board of directors in the near future.



L. E. Hogsett, C. J. Huyck and A. G. Haglund, of the participants in Axelson's recent golf tournament.



J. CURTS, JR.
Los Angeles Manager for The Gulf Publishing Company

Dowell Representatives Meet in Conference at Midland

Representatives of Dowell, Inc., from nine states attended a three-day sales meeting at Midland, Michigan, headquarters of the company last week. A special train was made up at Chicago of special cars from Tulsa, Oklahoma, Midland, Texas, Wichita, Kansas, and St. Louis, Missouri, which brought delegates to Midland via Bay City.

Willard H. Dow, president of Dow Chemical Company, parent company of Dowell, Inc., and N. R. Crawford, manager of Dowell, Inc., opened the conference, introducing personnel of the companies.

Speakers included: R. D. Shaw, L. W. Lee, L. D. Smithers, J. G. Staudt, J. J. Johnson, D. G. Hefley, W. J. Russell, L. R. Austin, C. T. Young, O. N. Maness, R. L. White, F. R. Holland, W. S. Day, J. H. Courtner, F. I. McConnell, C. E. Mangold, J. A. Cummin, Dr. J. J. Grebe, A. P. Beutel, Charles Penhaligen, H. W. Ross, W. B. Tennis, G. F. Williams, L. I. Doan, James Adams, Dr. W. R. Veazey, N. R. Crawford, W. E. Reardon, John Stone, P. E. Fitzgerald, Neil Miller, E. Field.

Those attending were: D. L. Connor, N. R. Crawford, P. E. Fitzgerald, M. W. Frack, D. G. Hefley, J. J. Johnson, P. J. Lenhard, H. W. Rose, W. E. Reardon, R. D. Shaw, L. D. Smithers, J. G. Staudt, John Stone, C. F. Walker and C. T. Jamison, all of Tulsa; W. J. Russell and A. A. Townsend, Seminole; R. E. Hilpert, F. I. McConnell, S. C. Morian and T. E. Timmons, Midland, Texas; B. J. Cotey, Seagraves, Texas; F. R. Holland, Stamford, Texas; O. W. Lyons, Borger, Texas; W. P. Trapnell, McCamey, Texas; L. R. White, Amarillo, Texas; G. F. Williams, Longview, Texas; C. T. Young, Seguin, Texas; L. R. Austin, Shelby, Montana; R. S. Bonham, L. A. Curter, J. H. Courtner and W. W. Love, Lawrenceville, Illinois; James Adams, Detroit, Michigan; William S. Day, Mt. Pleasant, Michigan; J. A. Cummin, W. D. Miller and W. B. Tennis, Wichita, Kansas; D. Pomranky, Eureka, Kansas; J. M. Veazey, Newton, Kansas; O. N. Maness, Long Beach, California; C. E. Mangold and C. A. Prince, Shreveport; and Dr. C. F. Prutton, Cleveland, Ohio.

Jay Curts Representing *The Oil Weekly* on Coast

Jay Curts, Jr., recently joined the advertising staff of The Gulf Publishing Company as manager of the Los Angeles office, location of which has been moved to 426 W. W. Wilson Building, 5905 Pacific Boulevard (Huntington Park). He will handle sales on the Pacific Coast of space in THE OIL WEEKLY, The Refiner, and Composite Catalog of Oil Field and Pipe Line Equipment, and Composite Catalog of Refinery Equipment. W. E. Green, who has been in charge of this office, continues as editorial representative.

Curts, whose home is at Oakland, California, graduated from the University of California in 1927, and immediately joined The Dallas Dispatch at Dallas, Texas, and for the past two years was advertising manager of that newspaper.

Squeaks from the Bull Wheel

Ancients

Aaron approached a market stand on which some questionable-looking fowl were offered for sale.

"What do you sell these for?"

"I sell them for profits."

"Is that so? I'm glad to know that they are prophets. I took them for patriarchs."

All the Way Down

"How far down do you want to sit?" asked the usher.

"Why, all the way, of course."

Fairly Fair

"How is it, Al, that you make such a profit off your coal? Your price is lower than any other dealer in the city and yet you make extra reductions for your friends."

"Well, you see, I knock off a dollar a ton because a customer is a friend of mine and then I just take ten bushels off the ton because I'm a friend of his."

Conserving Every Drop

A northern farm hand went to work for a Texas rancher. There had been a long drought, and every man on the ranch was hoping for rain. One day it started to sprinkle, and the farm hand, to show his delight, began to dance in the rain.

"Hey, you," shouted the ranch owner, "come in out of the rain!"

"Oh, I don't mind it a bit," called back the farm hand.

"That isn't the point," insisted the rancher. "I want every drop of that water to fall on Texas."

An Official

The official of a large New York bank was visiting a friend up-state. At the dinner table the first evening he noted the presence of another man.

"I suppose this is the hired man?" he asked.

"No," interposed his friend. "He's the first vice president in charge of cows."

Saving the Utensils

The family and their guest had just seated themselves at the table.

"Susie," said the mother, "why didn't you put a knife and fork at Mr. McKlunk's place?"

"He don't need any, mother," replied Susie. "You said he eats like a horse."

Their Orbits Conflict

Two dark gentlemen called one evening upon the same girl and arrived on her porch at the same time.

"Well, Mista Jonsing, I see we is done arrove simultoously dis evening."

"Yessuh, Mista Jones, we sho is contemporary on dis occasion."

Remember, Father?

"That young man stays to an unearthly hour every night, Gladys. What does your mother say about it?"

"Well, dad, she says that men haven't changed a bit."

Which Is It?

"My husband is the only man who ever kissed me."

"Are you bragging or complaining?"

No Handicaps

Husband: "Let's go out and have some fun."

Wife: "Fine, if you get in before I do, hide the key in the flower pot and leave the hall light on."

Room for Expansion

"Willie, what is an adult?"

"An adult is one that has stopped growing except in the middle."

No Fair

"Was it a big wedding?"

"Yes. I got in line twice to kiss the bride and nobody noticed it."

Gone A Long Time

"Is the doctor in?"

"No suh."

"Have you any idea when he will be back?"

"I don't know, suh—he went out on an eternity case."

What's In a Name

Ruth was a sweet girl. She was reading a book that gave the meaning of names. Her mother was watching her, and thinking of all the young men who were attracted to her.

"Mother," said Ruth, "it says Philip means lover of horses, and James means beloved. Mother, what does George mean, I wonder?"

"I hope, my dear," said her mother, "that George means business."

Such Ignorance!

What's the charge against this man, officer?

Bigotry, yer honor. He's got three wives.

I'm surprised at your ignorance, officer. That's trigonometry, not bigotry.

All Wrong

A salesman was dismissed because of a lack of courtesy to customers. A month later the sales manager spotted him walking about in a police uniform.

"I see you have joined the force, Jones."

"Yes, this is the job I have been looking for all my life. On this job the customer is always 'wrong'."

The Telephone Girl

The producer of a local dramatic society was giving some final instructions before the curtain went up on the first night of the show.

"Now don't forget," he told the heroine, "when the villain takes you in his arms you have to call out loudly, 'Oh! oh! oh! please save me!'"

But the heroine was a telephone girl, and she brought down the house when she cried. "Oh double oh, please save me!"

GOLDEN ANNIVERSARY

HALF A CENTURY YOUNG

A desire to make better products for the oil industry—backed by fifty years of oil experience! No wonder oil men choose Darling Valve Cups—for longer, safer, more economical service!

DARCOVA (Orange Label) the standard for over thirty years under severe service at all depths.

DARVAL (Blue Label) for service in wells to approximately 2000 feet in depth.

DARFLEX (Green Label) the popular favorite for wells to 800 feet in depth.

Seating Cup (Cut away to show section)

Seating Ring (Cut away to show section)

Our Seating Cups and Rings are made from the same fine materials—and by the same careful methods—as **Darcova, Darval** or **Darflex Valve Cups.** Available in "Regular", "+15", and "+30" sizes.

Manufactured Only By

DARLING VALVE & MFG. CO.

Williamsport, Pa.

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